



2007-06-23 1254-0326PUS1.ST251
SEQUENCE LISTING

<110> SHIMADA, Hideaki
TOMONAGA, Takeshi
HIWASA, Takaki
MATSUSHITA, Kazuyuki
OCHIAI, Takenori
NOMURA, Fumio

<120> DIAGNOSTIC KIT FOR SOLID CANCER AND MEDICAMENT FOR SOLID CANCER THERAPY

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<140> US 10/594,771

<141> 2006-09-29

<150> JP 2004-095732

<151> 2004-03-29

<160> 75

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Leu Leu Leu Lys Asn Ser Pro Leu Val Ser Arg Leu Thr Leu Tyr Asp
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Ile Ala His Thr Pro Gly Val Ala Ala Asp Leu Ser His Ile Glu Thr
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Gln Gln Ala Asp Glu Ala Glu Asp Arg Ala Gln Gly Leu Gln Arg Glu
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cag gaa cga ctg gcc acg gcc ctg cag aag ctg gag gag gca gaa aaa	296
Gln Glu Arg Leu Ala Thr Ala Leu Gln Lys Leu Glu Glu Ala Glu Lys	
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Arg Ala Gln Glu Arg Leu Ala Thr Ala Leu Gln Lys Leu Glu Glu Ala
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195 200 205

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Glu	Gly	Thr	Gly	Thr	Glu	Met	Pro	Met	Ile	Gly	Asp	Arg	Val	Phe	Val
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Asp	Arg	Lys	Asp	Lys	Phe	Ser	Phe	Asp	Leu	Gly	Lys	Gly	Glu	Val	Ile
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aag	gct	tgg	gac	att	gcc	ata	gcc	acc	atg	aag	gtg	ggg	gag	gtg	tgc
Lys	Ala	Trp	Asp	Ile	Ala	Ile	Ala	Thr	Met	Lys	Val	Gly	Glu	Val	Cys
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Leu	Pro	Tyr	Gly	Leu	Glu	Arg	Ala	Ile	Gln	Arg	Met	Glu	Lys	Gly	Glu
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Lys	Glu	Lys	Phe	Gln	Ile	Pro	Pro	Asn	Ala	Glu	Leu	Lys	Tyr	Glu	Leu
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Asn Asn Lys Ala Ala Lys Thr Gln Leu Ala Val Cys Gln Gln Arg Ile
385 390 395 400

Arg Arg Gln Leu Ala Arg Glu Lys Lys Leu Tyr Ala Asn Met Phe Glu
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Arg Leu Ala Glu Glu Glu Asn Lys Ala Lys Ala Glu Ala Ser Ser Gly
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420

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Ile Ile Gly Glu Leu Leu Lys Gln Ala Asp Leu Tyr Ile Ser Glu Gly	
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 Leu His Pro Arg Ile Ile Thr Glu Gly Phe Glu Ala Ala Lys Glu Lys
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Ala	Leu	Gln	Phe	Leu	Glu	Glu	Val	Lys	Val	Ser	Arg	Glu	Met	Asp	Arg		
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Ala Glu Leu Ala Asp Val Leu Thr Glu Ala Val Val Asp Ser Ile Leu				
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Met Glu Met Lys His Lys Ser Glu Thr Asp Thr Ser Leu Ile Arg Gly				
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Thr Glu Val Asn Ser Gly Phe Phe Tyr Lys Ser Ala Glu Glu Arg Glu				
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Lys Leu Val Lys Ala Glu Arg Lys Phe Ile Glu Asp Arg Val Lys Lys				
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Ile Ile Glu Leu Lys Arg Lys Val Cys Gly Asp Ser Asp Lys Gly Phe				
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325	330	335		
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cgt tct gtc aca tta ttg atc aaa gga cca aat aag cac aca ctc act				1210
Arg Ser Val Thr Leu Leu Ile Lys Gly Pro Asn Lys His Thr Leu Thr				
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cag atc aaa gat gca gtg agg gac ggc ttg agg gct gtc aaa aat gct				1258
Gln Ile Lys Asp Ala Val Arg Asp Gly Leu Arg Ala Val Lys Asn Ala				
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His Glu Met Gln Ile Gln His Pro Thr Ala Ser Leu Ile Ala Lys Val
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Ala Thr Ala Gln Asp Asp Ile Thr Gly Asp Gly Thr Thr Ser Asn Val
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115 120 125

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Thr Gln Ile Lys Asp Ala Val Arg Asp Gly Leu Arg Ala Val Lys Asn
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Met Arg Ser
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Glu Val Lys Lys Pro Ala Ala Ala Ala Pro Gly Thr Ala Glu Lys
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Leu Ser Pro Lys Ala Ala Thr Leu Ala Glu Arg Ser Ala Gly Leu Ala
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Phe Ser Leu Tyr Gln Ala Met Ala Lys Asp Gln Ala Val Glu Asn Ile
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Glu	Gln	Leu	Arg	Asp	Glu	Glu	Val	His	Ala	Gly	Leu	Gly	Glu	Leu	Leu	
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cgc	tca	ctc	agc	aac	tcc	acg	gcg	cgc	aac	gtg	acc	tgg	aag	ctg	ggc	622
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Arg	Asp	Lys	Arg	Ser	Ala	Leu	Gln	Ser	Ile	Asn	Glu	Trp	Ala	Ala	Gln	
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Thr	Thr	Asp	Gly	Lys	Leu	Pro	Glu	Val	Thr	Lys	Asp	Val	Glu	Arg	Thr	
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Glu	Lys	Phe	His	His	Lys	Met	Val	Asp	Asn	Arg	Gly	Phe	Met	Val	Thr	
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Asn	Tyr	Tyr	Asp	Asp	Glu	Lys	Glu	Lys	Leu	Gln	Ile	Val	Glu	Met	Pro	
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Ala Glu Lys Leu Ser Pro Lys Ala Ala Thr Leu Ala Glu Arg Ser Ala
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225 230 235 240

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325 330 335

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Met Val Pro Leu Val Ala Val Val Ser Gly Pro Arg
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Ala Gln Leu Phe Ala Cys Leu Leu Arg Leu Gly Thr Gln Gln Val Gly
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Pro Leu Gln Leu His Thr Gly Ala Ser His Ala Ala Arg Asn His Tyr
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gag gtg ctg gtg ctg ggt ggg ggc agt ggc gga atc acc atg gct gcc 256
Glu Val Leu Val Leu Gly Gly Ser Gly Gly Ile Thr Met Ala Ala

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agt gag aga cat ttc tac cag cca atc tgg aca ctg gtg ggt gct ggt Ser Glu Arg His Phe Tyr Gln Pro Ile Trp Thr Leu Val Gly Ala Gly	80	85	90	352
gcc aaa caa ttg tcc tca tct ggt cgt ccc acg gca agt gtg att cca Ala Lys Gln Leu Ser Ser Gly Arg Pro Thr Ala Ser Val Ile Pro	95	100	105	400
tct ggt gta gaa tgg atc aaa gct aga gtg act gag ttg aac cca gac Ser Gly Val Glu Trp Ile Lys Ala Arg Val Thr Glu Leu Asn Pro Asp	110	115	120	448
aag aac tgc att cac aca gat gac gac gag aag atc tcc tac cga tat Lys Asn Cys Ile His Thr Asp Asp Asp Glu Lys Ile Ser Tyr Arg Tyr	125	130	135	496
ctt att att gct ctc gga atc cag ctg gac tat gag aag att aaa ggc Leu Ile Ile Ala Leu Gly Ile Gln Leu Asp Tyr Glu Lys Ile Lys Gly	145	150	155	544
cta cct gaa ggt ttc gct cat ccc aaa ata ggg tcg aat tat tca gtt Leu Pro Glu Gly Phe Ala His Pro Lys Ile Gly Ser Asn Tyr Ser Val	160	165	170	592
aag act gta gag aag aca tgg aaa gct ctg cag gac ttc aaa gag ggc Lys Thr Val Glu Lys Thr Trp Lys Ala Leu Gln Asp Phe Lys Glu Gly	175	180	185	640
aat gcc atc ttc acc ttc cca aat act cca gtg aag tgt gct gga gcc Asn Ala Ile Phe Thr Phe Pro Asn Thr Pro Val Lys Cys Ala Gly Ala	190	195	200	688
cct cag aag atc atg tac tta tca gaa gcc tac ttc agg aag aca ggg Pro Gln Lys Ile Met Tyr Leu Ser Glu Ala Tyr Phe Arg Lys Thr Gly	205	210	215	736
aag cga tcc aag gcc aat atc att ttc aac act tct ctt gga gcc att Lys Arg Ser Lys Ala Asn Ile Ile Phe Asn Thr Ser Leu Gly Ala Ile	225	230	235	784
ttc ggg gtt aag aag tat gca gat gcc ctg cag gag atc atc cag gag Phe Gly Val Lys Lys Tyr Ala Asp Ala Leu Gln Glu Ile Ile Gln Glu	240	245	250	832
cgg aac ctc act gtt aac tac aag aaa aac ctc att gaa gtc cga gcc Arg Asn Leu Thr Val Asn Tyr Lys Lys Asn Leu Ile Glu Val Arg Ala	255	260	265	880
gat aaa caa gag gct gta ttt gag aac ctg gac aaa cca gga gag acc Asp Lys Gln Glu Ala Val Phe Glu Asn Leu Asp Lys Pro Gly Glu Thr	270	275	280	928
caa gtg att tca tat gaa atg ctt cat gtc aca cct cca atg agc cca Gln Val Ile Ser Tyr Glu Met Leu His Val Thr Pro Pro Met Ser Pro	285	290	295	976
cca gat gtc ctc aag acc agt cct gtg gct gat gct gct ggt tgg gtg				1024

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Pro Asp Val Leu Lys Thr Ser Pro Val Ala Asp Ala Ala Gly Trp Val
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gat gtg gat aaa gaa act ctg caa cac agg agg tac cca aat gtg ttt 1072
Asp Val Asp Lys Glu Thr Leu Gln His Arg Arg Tyr Pro Asn Val Phe
320 325 330

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Gly Ile Gly Asp Cys Thr Asn Leu Pro Thr Ser Lys Thr Ala Ala Ala
335 340 345

gta gct gcc cag tca gga ata ctt gat agg aca att tct gta att atg 1168
Val Ala Ala Gln Ser Gly Ile Leu Asp Arg Thr Ile Ser Val Ile Met
350 355 360

aag aat caa aca cca aca aag aag tat gat ggc tac aca tca tgt cca 1216
Lys Asn Gln Thr Pro Thr Lys Tyr Asp Gly Tyr Thr Ser Cys Pro
365 370 375 380

ctg gtg acc ggc tac aac cgt gtg att ctt gct gag ttt gac tac aaa 1264
Leu Val Thr Gly Tyr Asn Arg Val Ile Leu Ala Glu Phe Asp Tyr Lys
385 390 395

gca gag ccg cta gaa acc ttc ccc ttt gat caa agc aaa gag cgc ctt 1312
Ala Glu Pro Leu Glu Thr Phe Pro Phe Asp Gln Ser Lys Glu Arg Leu
400 405 410

tcc atg tat ctc atg aaa gct gac ctg atg cct ttc ctg tat tgg aat 1360
Ser Met Tyr Leu Met Lys Ala Asp Leu Met Pro Phe Leu Tyr Trp Asn
415 420 425

atg atg cta agg ggt tac tgg gga gga cca gcg ttt ctg cgc aag ttg 1408
Met Met Leu Arg Gly Tyr Trp Gly Gly Pro Ala Phe Leu Arg Lys Leu
430 435 440

ttt cat cta ggt atg agt taa ggatggctca gcacttgctc atcttggatg 1459
Phe His Leu Gly Met Ser
445 450

gcttctggc caaaaactgca gtcactgaat gaccaagagc agcacgaagg acttgaaacc 1519

tatccttgta aagagttcct tcatggtaa tggtgaccaa atgcctccct tttcagtacc 1579

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His Thr Gly Ala Ser His Ala Ala Arg Asn His Tyr Glu Val Leu Val
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Leu Gly Gly Ser Gly Gly Ile Thr Met Ala Ala Arg Met Lys Arg
50 55 60

Lys Val Gly Ala Glu Asn Val Ala Ile Val Glu Pro Ser Glu Arg His
65 70 75 80

Phe Tyr Gln Pro Ile Trp Thr Leu Val Gly Ala Gly Ala Lys Gln Leu
85 90 95

Ser Ser Ser Gly Arg Pro Thr Ala Ser Val Ile Pro Ser Gly Val Glu
100 105 110

Trp Ile Lys Ala Arg Val Thr Glu Leu Asn Pro Asp Lys Asn Cys Ile
115 120 125

His Thr Asp Asp Asp Glu Lys Ile Ser Tyr Arg Tyr Leu Ile Ile Ala
130 135 140

Leu Gly Ile Gln Leu Asp Tyr Glu Lys Ile Lys Gly Leu Pro Glu Gly
145 150 155 160

Phe Ala His Pro Lys Ile Gly Ser Asn Tyr Ser Val Lys Thr Val Glu
165 170 175

Lys Thr Trp Lys Ala Leu Gln Asp Phe Lys Glu Gly Asn Ala Ile Phe
180 185 190

Thr Phe Pro Asn Thr Pro Val Lys Cys Ala Gly Ala Pro Gln Lys Ile
195 200 205

Met Tyr Leu Ser Glu Ala Tyr Phe Arg Lys Thr Gly Lys Arg Ser Lys
210 215 220

Ala Asn Ile Ile Phe Asn Thr Ser Leu Gly Ala Ile Phe Gly Val Lys
225 230 235 240

Lys Tyr Ala Asp Ala Leu Gln Glu Ile Ile Gln Glu Arg Asn Leu Thr
245 250 255

Val Asn Tyr Lys Lys Asn Leu Ile Glu Val Arg Ala Asp Lys Gln Glu
260 265 270

Ala Val Phe Glu Asn Leu Asp Lys Pro Gly Glu Thr Gln Val Ile Ser
275 280 285

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Tyr Glu Met Leu His Val Thr Pro Pro Met Ser Pro Pro Asp Val Leu
290 295 300

Lys Thr Ser Pro Val Ala Asp Ala Ala Gly Trp Val Asp Val Asp Lys
305 310 315 320

Glu Thr Leu Gln His Arg Arg Tyr Pro Asn Val Phe Gly Ile Gly Asp
325 330 335

Cys Thr Asn Leu Pro Thr Ser Lys Thr Ala Ala Ala Val Ala Ala Gln
340 345 350

Ser Gly Ile Leu Asp Arg Thr Ile Ser Val Ile Met Lys Asn Gln Thr
355 360 365

Pro Thr Lys Lys Tyr Asp Gly Tyr Thr Ser Cys Pro Leu Val Thr Gly
370 375 380

Tyr Asn Arg Val Ile Leu Ala Glu Phe Asp Tyr Lys Ala Glu Pro Leu
385 390 395 400

Glu Thr Phe Pro Phe Asp Gln Ser Lys Glu Arg Leu Ser Met Tyr Leu
405 410 415

Met Lys Ala Asp Leu Met Pro Phe Leu Tyr Trp Asn Met Met Leu Arg
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5 10 15

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gtt gtt gtg aat gat ttg gga ggg gac ttc aaa gga gtt ggt aaa ggc Val Val Val Asn Asp Leu Gly Gly Asp Phe Lys Gly Val Gly Lys Gly 40 45 50	201
tcc tta gct gct gat aag gtt gtt gaa gaa ata aga agg aga ggt gga Ser Leu Ala Ala Asp Lys Val Val Glu Glu Ile Arg Arg Arg Gly Gly 55 60 65	249
aaa gca gtg gcc aac tat gat tca gtg gaa gaa gga gag aag gtt gtg Lys Ala Val Ala Asn Tyr Asp Ser Val Glu Glu Gly Glu Lys Val Val 70 75 80	297
aag aca gcc ctg gat gct ttt gga aga ata gat gtt gtg gtc aac aat Lys Thr Ala Leu Asp Ala Phe Gly Arg Ile Asp Val Val Val Asn Asn 85 90 95	345
gct gga att ctg agg gat cgt tcc ttt gct agg ata agt gat gaa gac Ala Gly Ile Leu Arg Asp Arg Ser Phe Ala Arg Ile Ser Asp Glu Asp 100 105 110 115	393
tgg gat ata atc cac aga gtt cat ttg cgg ggt tca ttc caa gtg aca Trp Asp Ile Ile His Arg Val His Leu Arg Gly Ser Phe Gln Val Thr 120 125 130	441
cgg gca gca tgg gaa cac atg aag aaa cag aag tat gga agg att att Arg Ala Ala Trp Glu His Met Lys Lys Gln Lys Tyr Gly Arg Ile Ile 135 140 145	489
atg act tca tca gct tca gga ata tat ggc aac ttt ggc cag gcc aat Met Thr Ser Ser Ala Ser Gly Ile Tyr Gly Asn Phe Gly Gln Ala Asn 150 155 160	537
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att gaa ggc agg aaa agc aac att cat tgt aac acc att gct cct aat Ile Glu Gly Arg Lys Ser Asn Ile His Cys Asn Thr Ile Ala Pro Asn 180 185 190 195	633
gcg gga tca cgg atg act cag aca gtt atg cct gaa gat ctt gtg gaa Ala Gly Ser Arg Met Thr Gln Thr Val Met Pro Glu Asp Leu Val Glu 200 205 210	681
gcc ctg aag cca gag tat gtg gca cct ctt gtc ctt tgg ctt tgt cac Ala Leu Lys Pro Glu Tyr Val Ala Pro Leu Val Leu Trp Leu Cys His 215 220 225	729
gag agt tgt gag gag aat ggt ggc ttg ttt gag gtt gga gca gga tgg Glu Ser Cys Glu Glu Asn Gly Gly Leu Phe Glu Val Gly Ala Gly Trp 230 235 240	777
att gga aaa tta cgc tgg gag cgg act ctt gga gct att gta aga caa Ile Gly Lys Leu Arg Trp Glu Arg Thr Leu Gly Ala Ile Val Arg Gln 245 250 255	825
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act ggc agt ata att gaa gtt ctg agt aaa ata gat tca gaa gga gga Thr Gly Ser Ile Ile Glu Val Leu Ser Lys Ile Asp Ser Glu Gly Gly 295 300 305				969
gtt tca gca aat cat act agt cgt gca acg tct aca gca aca tca gga Val Ser Ala Asn His Thr Ser Arg Ala Thr Ser Thr Ala Thr Ser Gly 310 315 320				1017
ttt gct gga gct att ggc cag aaa ctc cct cca ttt tct tat gct tat Phe Ala Gly Ala Ile Gly Gln Lys Leu Pro Pro Phe Ser Tyr Ala Tyr 325 330 335				1065
acg gaa ctg gaa gct att atg tat gcc ctt gga gtg gga gcg tca atc Thr Glu Leu Glu Ala Ile Met Tyr Ala Leu Gly Val Gly Ala Ser Ile 340 345 350 355				1113
aag gat cca aaa gat ttg aaa ttt att tat gaa gga agt tct gat ttc Lys Asp Pro Lys Asp Leu Lys Phe Ile Tyr Glu Gly Ser Ser Asp Phe 360 365 370				1161
tcc tgt ttg ccc acc ttc gga gtt atc ata ggt cag aaa tct atg atg Ser Cys Leu Pro Thr Phe Gly Val Ile Ile Gly Gln Lys Ser Met Met 375 380 385				1209
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gtt ctt cat gga gag cag tac tta gag tta tat aaa cca ctt ccc aga Val Leu His Gly Glu Gln Tyr Leu Glu Leu Tyr Lys Pro Leu Pro Arg 405 410 415				1305
gca gga aaa tta aaa tgt gaa gca gtt gtt gct gat gtc cta gat aaa Ala Gly Lys Leu Lys Cys Glu Ala Val Val Ala Asp Val Leu Asp Lys 420 425 430 435				1353
gga tcc ggt gta gtg att att atg gat gtc tat tct tat tct gag aag Gly Ser Gly Val Val Ile Ile Met Asp Val Tyr Ser Tyr Ser Glu Lys 440 445 450				1401
gaa ctt ata tgc cac aat cag ttc tct ctc ttt ctt gtt ggc tct gga Glu Leu Ile Cys His Asn Gln Phe Ser Leu Phe Leu Val Gly Ser Gly 455 460 465				1449
ggc ttt ggt gga aaa cggtaca tca gac aaa gtc aag gta gct gta gcc Gly Phe Gly Gly Lys Arg Thr Ser Asp Lys Val Lys Val Ala Val Ala 470 475 480				1497
ata cct aat aga cct cct gat gct gta ctt aca gat acc acc tct ctt Ile Pro Asn Arg Pro Pro Asp Ala Val Leu Thr Asp Thr Thr Ser Leu 485 490 495				1545
aat cag gct gct ttg tac cgc ctc agt gga gac tgg aat ccc tta cac Asn Gln Ala Ala Leu Tyr Arg Leu Ser Gly Asp Trp Asn Pro Leu His 500 505 510 515				1593
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cat gga tta tgt aca ttt gga ttt tct gcc agg cgt gtg tta cag cag			1689
His Gly Leu Cys Thr Phe Gly Phe Ser Ala Arg Arg Val Leu Gln Gln			
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ttt gca gat aat gat gtg tca aga ttc aag gca att aag gct cgt ttt			1737
Phe Ala Asp Asn Asp Val Ser Arg Phe Lys Ala Ile Lys Ala Arg Phe			
550	555	560	
gca aaa cca gta tat cca gga caa act cta caa act gag atg tgg aag			1785
Ala Lys Pro Val Tyr Pro G1y Gln Thr Leu Gln Thr Glu Met Trp Lys			
565	570	575	
gaa gga aac aga att cat ttt caa acc aag gtc caa gaa act gga gac			1833
Glu Gly Asn Arg Ile His Phe Gln Thr Lys Val Gln Glu Thr Gly Asp			
580	585	590	595
att gtc att tca aat gca tat gtg gat ctt gca cca aca tct ggt act			1881
Ile Val Ile Ser Asn Ala Tyr Val Asp Leu Ala Pro Thr Ser Gly Thr			
600	605	610	
tca gct aag aca ccc tct gag ggc ggg aag ctt cag agt acc ttt gta			1929
Ser Ala Lys Thr Pro Ser Glu G1y G1y Lys Leu Gln Ser Thr Phe Val			
615	620	625	
ttt gag gaa ata gga cgc cgc cta aag gat att ggg cct gag gtg gtg			1977
Phe Glu Glu Ile Gly Arg Arg Leu Lys Asp Ile Gly Pro Glu Val Val			
630	635	640	
aag aaa gta aat gct gta ttt gag tgg cat ata acc aaa ggc gga aat			2025
Lys Lys Val Asn Ala Val Phe Glu Trp His Ile Thr Lys G1y G1y Asn			
645	650	655	
att ggg gct aag tgg act att gac ctg aaa agt ggt tct gga aaa gtg			2073
Ile G1y Ala Lys Trp Thr Ile Asp Leu Lys Ser Gly Ser Gly Lys Val			
660	665	670	675
tac caa ggc cct gca aaa ggt gct gct gat aca aca atc ata ctt tca			2121
Tyr Gln G1y Pro Ala Lys Gly Ala Ala Asp Thr Thr Ile Ile Leu Ser			
680	685	690	
gat gaa gat ttc atg gag gtg gtc ctg ggc aag ctt gac cct cag aag			2169
Asp Glu Asp Phe Met Glu Val Val Leu Gly Lys Leu Asp Pro Gln Lys			
695	700	705	
gca ttc ttt agt ggc agg ctg aag gcc aga ggg aac atc atg ctg agc			2217
Ala Phe Phe Ser G1y Arg Leu Lys Ala Arg Gly Asn Ile Met Leu Ser			
710	715	720	
cag aaa ctt cag atg att ctt aaa gac tac gcc aag ctc tga			2259
Gln Lys Leu Gln Met Ile Leu Lys Asp Tyr Ala Lys Leu			
725	730	735	
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35 40 45

Gly Lys Gly Ser Leu Ala Ala Asp Lys Val Val Glu Glu Ile Arg Arg
50 55 60

Arg Gly Gly Lys Ala Val Ala Asn Tyr Asp Ser Val Glu Glu Gly Glu
65 70 75 80

Lys Val Val Lys Thr Ala Leu Asp Ala Phe Gly Arg Ile Asp Val Val
85 90 95

Val Asn Asn Ala Gly Ile Leu Arg Asp Arg Ser Phe Ala Arg Ile Ser
100 105 110

Asp Glu Asp Trp Asp Ile Ile His Arg Val His Leu Arg Gly Ser Phe
115 120 125

Gln Val Thr Arg Ala Ala Trp Glu His Met Lys Lys Gln Lys Tyr Gly
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Arg Ile Ile Met Thr Ser Ser Ala Ser Gly Ile Tyr Gly Asn Phe Gly
145 150 155 160

Gln Ala Asn Tyr Ser Ala Ala Lys Leu Gly Leu Leu Gly Leu Ala Asn
165 170 175

Ser Leu Ala Ile Glu Gly Arg Lys Ser Asn Ile His Cys Asn Thr Ile
180 185 190

Ala Pro Asn Ala Gly Ser Arg Met Thr Gln Thr Val Met Pro Glu Asp
195 200 205

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Leu Val Glu Ala Leu Lys Pro Glu Tyr Val Ala Pro Leu Val Leu Trp
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Leu Cys His Glu Ser Cys Glu Glu Asn Gly Gly Leu Phe Glu Val Gly
225 230 235 240

Ala Gly Trp Ile Gly Lys Leu Arg Trp Glu Arg Thr Leu Gly Ala Ile
245 250 255

Val Arg Gln Lys Asn His Pro Met Thr Pro Glu Ala Val Lys Ala Asn
260 265 270

Trp Lys Lys Ile Cys Asp Phe Glu Asn Ala Ser Lys Pro Gln Ser Ile
275 280 285

Gln Glu Ser Thr Gly Ser Ile Ile Glu Val Leu Ser Lys Ile Asp Ser
290 295 300

Glu Gly Gly Val Ser Ala Asn His Thr Ser Arg Ala Thr Ser Thr Ala
305 310 315 320

Thr Ser Gly Phe Ala Gly Ala Ile Gly Gln Lys Leu Pro Pro Phe Ser
325 330 335

Tyr Ala Tyr Thr Glu Leu Glu Ala Ile Met Tyr Ala Leu Gly Val Gly
340 345 350

Ala Ser Ile Lys Asp Pro Lys Asp Leu Lys Phe Ile Tyr Glu Gly Ser
355 360 365

Ser Asp Phe Ser Cys Leu Pro Thr Phe Gly Val Ile Ile Gly Gln Lys
370 375 380

Ser Met Met Gly Gly Leu Ala Glu Ile Pro Gly Leu Ser Ile Asn
385 390 395 400

Phe Ala Lys Val Leu His Gly Glu Gln Tyr Leu Glu Leu Tyr Lys Pro
405 410 415

Leu Pro Arg Ala Gly Lys Leu Lys Cys Glu Ala Val Val Ala Asp Val
420 425 430

Leu Asp Lys Gly Ser Gly Val Val Ile Ile Met Asp Val Tyr Ser Tyr
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Ser Glu Lys Glu Leu Ile Cys His Asn Gln Phe Ser Leu Phe Leu Val
450 455 460

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Pro Leu His Ile Asp Pro Asn Phe Ala Ser Leu Ala Gly Phe Asp Lys
515 520 525

Pro Ile Leu His Gly Leu Cys Thr Phe Gly Phe Ser Ala Arg Arg Val
530 535 540

Leu Gln Gln Phe Ala Asp Asn Asp Val Ser Arg Phe Lys Ala Ile Lys
545 550 555 560

Ala Arg Phe Ala Lys Pro Val Tyr Pro Gly Gln Thr Leu Gln Thr Glu
565 570 575

Met Trp Lys Glu Gly Asn Arg Ile His Phe Gln Thr Lys Val Gln Glu
580 585 590

Thr Gly Asp Ile Val Ile Ser Asn Ala Tyr Val Asp Leu Ala Pro Thr
595 600 605

Ser Gly Thr Ser Ala Lys Thr Pro Ser Glu Gly Gly Lys Leu Gln Ser
610 615 620

Thr Phe Val Phe Glu Glu Ile Gly Arg Arg Leu Lys Asp Ile Gly Pro
625 630 635 640

Glu Val Val Lys Lys Val Asn Ala Val Phe Glu Trp His Ile Thr Lys
645 650 655

Gly Gly Asn Ile Gly Ala Lys Trp Thr Ile Asp Leu Lys Ser Gly Ser
660 665 670

Gly Lys Val Tyr Gln Gly Pro Ala Lys Gly Ala Ala Asp Thr Thr Ile
675 680 685

Ile Leu Ser Asp Glu Asp Phe Met Glu Val Val Leu Gly Lys Leu Asp
690 695 700

Pro Gln Lys Ala Phe Phe Ser Gly Arg Leu Lys Ala Arg Gly Asn Ile
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705

710

715

720

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 Lys Leu Asp Pro His Asn His Val Leu Tyr Ser Asn Arg Ser Ala Ala
 35 40 45

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 65 70 75

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 115 120 125

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 130 135 140

agg aca cta ctc agt gat cct acc tac cgg gag ctg ata gag cag cta 539
 Arg Thr Leu Leu Ser Asp Pro Thr Tyr Arg Glu Leu Ile Glu Gln Leu
 145 150 155

cga aac aag cct tct gac ctg ggc acg aaa cta caa gat ccc cggtc atc 587
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gag acc aag cca gag cca atg gaa gaa gat ctt cca gag aat aag aag Glu Thr Lys Pro Glu Pro Met Glu Glu Asp Leu Pro Glu Asn Lys Lys 210 215 220	731
cag gca ctg aaa gaa aaa gag ctg ggg aac gat gcc tac aag aag aaa Gln Ala Leu Lys Glu Lys Glu Leu Gly Asn Asp Ala Tyr Lys Lys Lys 225 230 235	779
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ccc act aac atg act tac att acc aat caa gca gcg gta tac ttt gaa Pro Thr Asn Met Thr Tyr Ile Thr Asn Gln Ala Ala Val Tyr Phe Glu 260 265 270	875
aag ggc gac tac aat aag tgc cgg gag ctt tgt gag aag gcc att gaa Lys Gly Asp Tyr Asn Lys Cys Arg Glu Leu Cys Glu Lys Ala Ile Glu 275 280 285	923
gtg ggg aga gaa aac cga gaa gac tat cga cag att gcc aaa gca tat Val Gly Arg Glu Asn Arg Glu Asp Tyr Arg Gln Ile Ala Lys Ala Tyr 290 295 300	971
gct cga att ggc aac tcc tac ttc aaa gaa gaa aag tac aag gat gcc Ala Arg Ile Gly Asn Ser Tyr Phe Lys Glu Glu Lys Tyr Lys Asp Ala 305 310 315	1019
atc cat ttc tat aac aag tct ctg gca gag cac cga acc cca gat gtg Ile His Phe Tyr Asn Lys Ser Leu Ala Glu His Arg Thr Pro Asp Val 320 325 330 335	1067
ctc aag aaa tgc cag cag gca gag aaa atc ctg aag gag caa gag cg Leu Lys Lys Cys Gln Gln Ala Glu Lys Ile Leu Lys Glu Gln Glu Arg 340 345 350	1115
ctg gcc tac ata aac ccc gac ctg gct ttg gag gag aag aac aaa ggc Leu Ala Tyr Ile Asn Pro Asp Leu Ala Leu Glu Glu Lys Asn Lys Gly 355 360 365	1163
aac gag tgt ttt cag aaa ggg gac tat ccc cag gcc atg aag cat tat Asn Glu Cys Phe Gln Lys Gly Asp Tyr Pro Gln Ala Met Lys His Tyr 370 375 380	1211
aca gaa gcc atc aaa agg aac ccg aaa gat gcc aaa tta tac agc aat Thr Glu Ala Ile Lys Arg Asn Pro Lys Asp Ala Lys Leu Tyr Ser Asn 385 390 395	1259
cga gct gcc tgc tac acc aaa ctc ctg gag ttc cag ctg gca ctc aag Arg Ala Ala Cys Tyr Thr Lys Leu Leu Glu Phe Gln Leu Ala Leu Lys 400 405 410 415	1307
gac tgt gag gaa tgt atc cag ctg gag ccg acc ttc atc aag ggt tat Asp Cys Glu Glu Cys Ile Gln Leu Glu Pro Thr Phe Ile Lys Gly Tyr	1355

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420

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Met	Asp	Val	Tyr	Gln	Lys	Ala	Leu	Asp	Leu	Asp	Ser	Ser	Cys	Lys	Glu	
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Ala	Ala	Asp	Gly	Tyr	Gln	Arg	Cys	Met	Met	Ala	Gln	Tyr	Asn	Arg	His	
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Asp	Ser	Pro	Glu	Asp	Val	Lys	Arg	Arg	Ala	Met	Ala	Asp	Pro	Glu	Val	
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cag	cag	atc	atg	agt	gac	cca	gcc	atg	cgc	ctt	atc	ctg	gaa	cag	atg	1595
Gln	Gln	Ile	Met	Ser	Asp	Pro	Ala	Met	Arg	Leu	Ile	Leu	Glu	Gln	Met	
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cag	aag	gac	ccc	cag	gca	ctc	agc	gaa	cac	tta	aag	aat	cct	gta	ata	1643
Gln	Lys	Asp	Pro	Gln	Ala	Leu	Ser	Glu	His	Leu	Lys	Asn	Pro	Val	Ile	
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gca	cag	aag	atc	cag	aag	ctg	atg	gat	gtg	ggt	ctg	att	gca	att	cgg	1691
Ala	Gln	Lys	Ile	Gln	Lys	Leu	Met	Asp	Val	Gly	Leu	Ile	Ala	Ile	Arg	
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tga	tgacttgttc	atccccctt	cccttcgccc	tcatgtggaa	agaggagctg											1744
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Leu Asp Pro His Asn His Val Leu Tyr Ser Asn Arg Ser Ala Ala Tyr
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35 40 45

Ala Lys Lys Gly Asp Tyr Gln Lys Ala Tyr Glu Asp Gly Cys Lys Thr
50 55 60

Val Asp Leu Lys Pro Asp Trp Gly Lys Gly Tyr Ser Arg Lys Ala Ala
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Ala Leu Glu Phe Leu Asn Arg Phe Glu Glu Ala Lys Arg Thr Tyr Glu
85 90 95

Glu Gly Leu Lys His Glu Ala Asn Asn Pro Gln Leu Lys Glu Gly Leu
100 105 110

Gln Asn Met Glu Ala Arg Leu Ala Glu Arg Lys Phe Met Asn Pro Phe
115 120 125

Asn Met Pro Asn Leu Tyr Gln Lys Leu Glu Ser Asp Pro Arg Thr Arg
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Thr Leu Leu Ser Asp Pro Thr Tyr Arg Glu Leu Ile Glu Gln Leu Arg
145 150 155 160

Asn Lys Pro Ser Asp Leu Gly Thr Lys Leu Gln Asp Pro Arg Ile Met
165 170 175

Thr Thr Leu Ser Val Leu Leu Gly Val Asp Leu Gly Ser Met Asp Glu
180 185 190

Glu Glu Glu Ile Ala Thr Pro Pro Pro Pro Pro Pro Lys Lys Glu
195 200 205

Thr Lys Pro Glu Pro Met Glu Glu Asp Leu Pro Glu Asn Lys Lys Gln
210 215 220

Ala Leu Lys Glu Lys Glu Leu Gly Asn Asp Ala Tyr Lys Lys Lys Asp
225 230 235 240

Phe Asp Thr Ala Leu Lys His Tyr Asp Lys Ala Lys Glu Leu Asp Pro
245 250 255

Thr Asn Met Thr Tyr Ile Thr Asn Gln Ala Ala Val Tyr Phe Glu Lys
260 265 270

Gly Asp Tyr Asn Lys Cys Arg Glu Leu Cys Glu Lys Ala Ile Glu Val
275 280 285

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Gly Arg Glu Asn Arg Glu Asp Tyr Arg Gln Ile Ala Lys Ala Tyr Ala
290 295 300

Arg Ile Gly Asn Ser Tyr Phe Lys Glu Glu Lys Tyr Lys Asp Ala Ile
305 310 315 320

His Phe Tyr Asn Lys Ser Leu Ala Glu His Arg Thr Pro Asp Val Leu
325 330 335

Lys Lys Cys Gln Gln Ala Glu Lys Ile Leu Lys Glu Gln Glu Arg Leu
340 345 350

Ala Tyr Ile Asn Pro Asp Leu Ala Leu Glu Glu Lys Asn Lys Gly Asn
355 360 365

Glu Cys Phe Gln Lys Gly Asp Tyr Pro Gln Ala Met Lys His Tyr Thr
370 375 380

Glu Ala Ile Lys Arg Asn Pro Lys Asp Ala Lys Leu Tyr Ser Asn Arg
385 390 395 400

Ala Ala Cys Tyr Thr Lys Leu Leu Glu Phe Gln Leu Ala Leu Lys Asp
405 410 415

Cys Glu Glu Cys Ile Gln Leu Glu Pro Thr Phe Ile Lys Gly Tyr Thr
420 425 430

Arg Lys Ala Ala Ala Leu Glu Ala Met Lys Asp Tyr Thr Lys Ala Met
435 440 445

Asp Val Tyr Gln Lys Ala Leu Asp Leu Asp Ser Ser Cys Lys Glu Ala
450 455 460

Ala Asp Gly Tyr Gln Arg Cys Met Met Ala Gln Tyr Asn Arg His Asp
465 470 475 480

Ser Pro Glu Asp Val Lys Arg Arg Ala Met Ala Asp Pro Glu Val Gln
485 490 495

Gln Ile Met Ser Asp Pro Ala Met Arg Leu Ile Leu Glu Gln Met Gln
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Lys Asp Pro Gln Ala Leu Ser Glu His Leu Lys Asn Pro Val Ile Ala
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Gly Gly Gly Gly Gly Arg Tyr Tyr Gly Gly Ser Glu Gly Gly
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cgg gcc cct aag cgg ctc aag act gac aac gcc ggc gac cag cac gga 148
Arg Ala Pro Lys Arg Leu Lys Thr Asp Asn Ala Gly Asp Gln His Gly
25 30 35 40
gyc ggc ggc ggt ggc ggt gga gga gcc ggg gcg gcg ggc ggc ggc ggc 196
Gly Gly Gly Gly Gly Gly Ala Gly Ala Ala Gly Gly Gly Gly Gly
45 50 55
ggt ggg gag aac tac gat gac ccg cac aaa acc cct gcc tcc cca gtt 244
Gly Gly Glu Asn Tyr Asp Asp Pro His Lys Thr Pro Ala Ser Pro Val
60 65 70
gtc cac atc agg ggc ctg att gac ggt gtg gtg gaa gca gac ctt gtg 292
Val His Ile Arg Gly Leu Ile Asp Gly Val Val Glu Ala Asp Leu Val
75 80 85
gag gcc ttg cag gag ttt gga ccc atc agc tat gtg gtg gta atg cct 340
Glu Ala Leu Gln Glu Phe Gly Pro Ile Ser Tyr Val Val Val Met Pro
90 95 100
aaa aag aga caa gca ctg gtg gag ttt gaa gat gtg ttg ggg gct tgc 388
Lys Lys Arg Gln Ala Leu Val Glu Phe Glu Asp Val Leu Gly Ala Cys
105 110 115 120
aac gca gtg aac tac gca gcc gac aac caa ata tac att gct ggt cac 436
Asn Ala Val Asn Tyr Ala Ala Asp Asn Gln Ile Tyr Ile Ala Gly His
125 130 135
cca gct ttt gtc aac tac tct acc agc cag aag atc tcc cgc cct ggg 484
Pro Ala Phe Val Asn Tyr Ser Thr Ser Gln Lys Ile Ser Arg Pro Gly
140 145 150
gac tcg gat gac tcc cgg agc gtg aac agt gtg ctt ctc ttt acc atc 532
Asp Ser Asp Asp Ser Arg Ser Val Asn Ser Val Leu Leu Phe Thr Ile
155 160 165
ctg aac ccc att tat tcg atc acc acg gat gtt ctt tac act atc tgt 580
Leu Asn Pro Ile Tyr Ser Ile Thr Thr Asp Val Leu Tyr Thr Ile Cys
170 175 180
aat cct tgt ggc cct gtc cag aga att gtc att ttc agg aag aat gga 628
Asn Pro Cys Gly Pro Val Gln Arg Ile Val Ile Phe Arg Lys Asn Gly
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aag gcc tct ctc aat ggg gct gat atc tat tct ggc tgt tgc act ctg	724
Lys Ala Ser Leu Asn Gly Ala Asp Ile Tyr Ser Gly Cys Cys Thr Leu	
220 225 230	
aag atc gaa tac gca aag cct aca cgc ttg aat gtg ttc aag aat gat	772
Lys Ile Glu Tyr Ala Lys Pro Thr Arg Leu Asn Val Phe Lys Asn Asp	
235 240 245	
cag gat act tgg gac tac aca aac ccc aat ctc agt gga caa ggt gac	820
Gln Asp Thr Trp Asp Tyr Thr Asn Pro Asn Leu Ser Gly Gln Gly Asp	
250 255 260	
cct ggc agc aac ccc aac aaa cgc cag agg cag ccc cct ctc ctg gga	868
Pro Gly Ser Asn Pro Asn Lys Arg Gln Arg Gln Pro Pro Leu Leu Gly	
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gat cac ccc gca gaa tat gga ggg ccc cac ggt ggg tac cac agc cat	916
Asp His Pro Ala Glu Tyr Gly Pro His Gly Gly Tyr His Ser His	
285 290 295	
tac cat gat gag ggc tac ggg ccc ccc cca cct cac tac gaa ggg aga	964
Tyr His Asp Glu Gly Tyr Gly Pro Pro Pro His Tyr Glu Gly Arg	
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agg atg ggt cca cca gtg ggg ggt cac cgt cgg ggc cca agt cgc tac	1012
Arg Met Gly Pro Pro Val Gly Gly His Arg Arg Gly Pro Ser Arg Tyr	
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Gly Pro Gln Tyr Gly His Pro Pro Pro Pro Pro Pro Pro Glu Tyr	
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Gly Pro His Ala Asp Ser Pro Val Leu Met Val Tyr Gly Leu Asp Gln	
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tct aag atg aac ggt gac cga gtc ttc aat gtc ttc tgc tta tat ggc	1156
Ser Lys Met Asn Gly Asp Arg Val Phe Asn Val Phe Cys Leu Tyr Gly	
365 370 375	
aat gtg gag aag gtg aaa ttc atg aaa agc aag ccg ggg gcc gcc atg	1204
Asn Val Glu Lys Val Lys Phe Met Lys Ser Lys Pro Gly Ala Ala Met	
380 385 390	
gtg gag atg gct gat ggc tac gct gta gac cgg gcc att acc cac ctc	1252
Val Glu Met Ala Asp Gly Tyr Ala Val Asp Arg Ala Ile Thr His Leu	
395 400 405	
aac aac aac ttc atg ttt ggg cag aag ctg aat gtc tgt gtc tcc aag	1300
Asn Asn Asn Phe Met Phe Gly Gln Lys Leu Asn Val Cys Val Ser Lys	
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cag cca gcc atc atg cct ggt cag tca tac ggg ttg gaa gac ggg tct	1348
Gln Pro Ala Ile Met Pro Gly Gln Ser Tyr Gly Leu Glu Asp Gly Ser	
425 430 435 440	
tgc agt tac aaa gac ttc agt gaa tcc cgg aac aat cgg ttc tcc acc	1396
Cys Ser Tyr Lys Asp Phe Ser Glu Ser Arg Asn Asn Arg Phe Ser Thr	

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475 480 485				
atc tgc gat gag ctg gga gtg aag cgg cca tct tct gtg aaa gta ttc Ile Cys Asp Glu Leu Gly Val Lys Arg Pro Ser Ser Val Lys Val Phe				1540
490 495 500				
tca ggc aaa agt gag cgc agc tcc tct gga ctg ctg gag tgg gaa tcc Ser Gly Lys Ser Glu Arg Ser Ser Gly Leu Leu Glu Trp Glu Ser				1588
505 510 515 520				
aag agc gat gcc ctg gag act ctg ggc ttc ctg aac cat tac cag atg Lys Ser Asp Ala Leu Glu Thr Leu Gly Phe Leu Asn His Tyr Gln Met				1636
525 530 535				
aaa aac cca aat ggt cca tac cct tac act ctg aag ttg tgt ttc tcc Lys Asn Pro Asn Gly Pro Tyr Pro Tyr Thr Leu Lys Leu Cys Phe Ser				1684
540 545 550				
act gct cag cac gcc tcc taa ttaggtgcct aggaagagtc ccatctgagc Thr Ala Gln His Ala Ser				1735
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				1855
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Ala Gly Ala Ala Gly Gly Gly Gly Glu Asn Tyr Asp Asp Pro
50 55 60

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His Lys Thr Pro Ala Ser Pro Val Val His Ile Arg Gly Leu Ile Asp
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Gly Val Val Glu Ala Asp Leu Val Glu Ala Leu Gln Glu Phe Gly Pro
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Ile Ser Tyr Val Val Val Met Pro Lys Lys Arg Gln Ala Leu Val Glu
100 105 110

Phe Glu Asp Val Leu Gly Ala Cys Asn Ala Val Asn Tyr Ala Ala Asp
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Ser Gln Lys Ile Ser Arg Pro Gly Asp Ser Asp Asp Ser Arg Ser Val
145 150 155 160

Asn Ser Val Leu Leu Phe Thr Ile Leu Asn Pro Ile Tyr Ser Ile Thr
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Thr Asp Val Leu Tyr Thr Ile Cys Asn Pro Cys Gly Pro Val Gln Arg
180 185 190

Ile Val Ile Phe Arg Lys Asn Gly Val Gln Ala Met Val Glu Phe Asp
195 200 205

Ser Val Gln Ser Ala Gln Arg Ala Lys Ala Ser Leu Asn Gly Ala Asp
210 215 220

Ile Tyr Ser Gly Cys Cys Thr Leu Lys Ile Glu Tyr Ala Lys Pro Thr
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Arg Leu Asn Val Phe Lys Asn Asp Gln Asp Thr Trp Asp Tyr Thr Asn
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Pro Asn Leu Ser Gly Gln Gly Asp Pro Gly Ser Asn Pro Asn Lys Arg
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Gln Arg Gln Pro Pro Leu Leu Gly Asp His Pro Ala Glu Tyr Gly Gly
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Pro His Gly Gly Tyr His Ser His Tyr His Asp Glu Gly Tyr Gly Pro
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Pro Pro Pro His Tyr Glu Gly Arg Arg Met Gly Pro Pro Val Gly Gly
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His Arg Arg Gly Pro Ser Arg Tyr Gly Pro Gln Tyr Gly His Pro Pro
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Pro Pro Pro Pro Pro Pro Glu Tyr Gly Pro His Ala Asp Ser Pro Val
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Leu Met Val Tyr Gly Leu Asp Gln Ser Lys Met Asn Gly Asp Arg Val
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370 375 380

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Val Asp Arg Ala Ile Thr His Leu Asn Asn Asn Phe Met Phe Gly Gln
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Lys Leu Asn Val Cys Val Ser Lys Gln Pro Ala Ile Met Pro Gly Gln
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Ser Tyr Gly Leu Glu Asp Gly Ser Cys Ser Tyr Lys Asp Phe Ser Glu
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Ser Arg Asn Asn Arg Phe Ser Thr Pro Glu Gln Ala Ala Lys Asn Arg
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Val Thr Glu Glu Asn Phe Phe Glu Ile Cys Asp Glu Leu Gly Val Lys
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Arg Pro Ser Ser Val Lys Val Phe Ser Gly Lys Ser Glu Arg Ser Ser
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Ser Gly Leu Leu Glu Trp Glu Ser Lys Ser Asp Ala Leu Glu Thr Leu
515 520 525

Gly Phe Leu Asn His Tyr Gln Met Lys Asn Pro Asn Gly Pro Tyr Pro
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Met Ser Ser Ser Pro Val
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aat gta aaa aag ctg aag gtg tcg gag ctg aaa gag gag ctc aag aag 284
Asn Val Lys Lys Leu Lys Val Ser Glu Leu Lys Glu Glu Leu Lys Lys
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cga cgc ctt tct gac aag ggt ctc aag gcc gag ctc atg gag cga ctc 332
Arg Arg Leu Ser Asp Lys Gly Leu Lys Ala Glu Leu Met Glu Arg Leu
25 30 35

cag gct gcg ctg gac gac gag gag gcc ggg ggc cgc ccc gcc atg gag 380
Gln Ala Ala Leu Asp Asp Glu Glu Ala Gly Gly Arg Pro Ala Met Glu
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ccc ggg aac ggc agc cta gac ctg ggc ggg gat tcc gct ggg cgc tcg 428
Pro Gly Asn Gly Ser Leu Asp Leu Gly Gly Asp Ser Ala Gly Arg Ser
55 60 65 70

gga gca ggc ctc gag cag gag gcc gcg gcc ggc gac gat gaa gag gag 476
Gly Ala Gly Leu Glu Gln Glu Ala Ala Ala Gly Gly Asp Glu Glu Glu
75 80 85

gag gaa gag gaa gag gag gaa gga atc tcc gct ctg gac ggc gac 524
Glu Glu Glu Glu Glu Glu Glu Gly Ile Ser Ala Leu Asp Gly Asp
90 95 100

cag atg gag cta gga gag gag aac ggg gcc gcg ggg gcg gcc gac tcg 572
Gln Met Glu Leu Gly Glu Glu Asn Gly Ala Ala Gly Ala Ala Asp Ser
105 110 115

ggc ccg atg gag gag gag gac ggc gcc tcg gaa gac gag aac ggc gac 620
Gly Pro Met Glu Glu Glu Glu Ala Ala Ser Glu Asp Glu Asn Gly Asp
120 125 130

gat cag ggt ttc cag gaa ggg gaa gat gag ctc ggg gac gaa gag gaa 668
Asp Gln Gly Phe Gln Glu Gly Glu Asp Glu Leu Gly Asp Glu Glu Glu
135 140 145 150

ggc gcg ggc gac gag aac ggg cac ggg gag cag cag cct caa ccg ccg 716
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155 160 165

gcg acg cag cag caa cag ccc caa cag cag cgc ggg gcc gcc aag gag 764
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170 175 180

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185							190					195					
gcf	ccg	ccc	ggg	gcf	agg	cag	ggc	cag	cag	cag	cag	gcf	gga	ggg	gac	ggc	860
Ala	Pro	Pro	Gly	Ala	Arg	Gln	Gly	Gln	Gln	Gln	Ala	Gly	Gly	Asp	Gly		
200					205						210						
aaa	aca	gaa	cag	aaa	ggc	gga	gat	aaa	aag	agg	ggt	gtt	aaa	aga	cca		908
Lys	Thr	Glu	Gln	Lys	Gly	Gly	Asp	Lys	Lys	Arg	Gly	Val	Lys	Arg	Pro		
215					220					225				230			
cga	gaa	gat	cat	ggc	cgt	gga	tat	ttt	gag	tac	att	gaa	gag	aac	aag		956
Arg	Glu	Asp	His	Gly	Arg	Gly	Tyr	Phe	Glu	Tyr	Ile	Glu	Glu	Asn	Lys		
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tat	agc	aga	gcc	aaa	tct	cct	cag	cca	cct	gtt	gaa	gaa	gaa	gat	gaa		1004
Tyr	Ser	Arg	Ala	Lys	Ser	Pro	Gln	Pro	Pro	Val	Glu	Glu	Glu	Asp	Glu		
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cac	tcc	gat	gac	aca	gtg	gtt	tgt	ctt	gat	act	tat	aat	tgt	gat	cta		1052
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					280			285			290						
gag	agt	ttt	gct	ttt	ctt	tgg	gct	gga	gga	aga	gca	tcc	tat	ggt	gtg		1148
Glu	Ser	Phe	Ala	Phe	Leu	Trp	Ala	Gly	Gly	Arg	Ala	Ser	Tyr	Gly	Val		
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tca	aaa	ggc	aaa	gtg	tgt	ttt	gag	atg	aag	gtt	aca	gag	aag	atc	cca		1196
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gta	agg	cat	tta	tat	aca	aaa	gat	att	gac	ata	cat	gaa	gtt	cgt	att		1244
Val	Arg	His	Leu	Tyr	Thr	Lys	Asp	Ile	Asp	Ile	His	Glu	Val	Arg	Ile		
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Gly	Trp	Ser	Leu	Thr	Ser	Gly	Met	Leu	Leu	Gly	Glu	Glu	Glu	Phe			
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gaa	gat	tat	gga	gaa	aag	ttt	gat	gaa	aat	gat	gtg	att	aca	tgt	ttt		1388
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caa	gat	ctt	ggc	gtt	gcc	ttc	aaa	atc	agt	aag	gaa	gtt	ctt	gct	gga		1484
Gln	Asp	Leu	Gly	Val	Ala	Phe	Lys	Ile	Ser	Lys	Glu	Val	Leu	Ala	Gly		
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cgf	cca	ctg	ttc	ccg	cat	gtt	ctc	tgc	cac	aac	tgt	gca	gtt	gaa	ttt		1532
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425

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1772

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1964

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2012

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2060

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2108

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2156

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2204

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745	750	755	
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Asn Arg Gly Asn Tyr Asn Gln Asn Phe Arg Gly Arg Gly Asn Asn Arg			
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Gly Tyr Lys Asn Gln Ser Gln Gly Tyr Asn Gln Trp Gln Gln Gly Gln			
775	780	785	790
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35 40 45

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50 55 60

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Gly Gly Asp Glu Gly Ile
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Leu Gly Asp Glu Glu Glu Gly Ala Gly Asp Glu Asn Gly His Gly Glu
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210 215 220

Arg Gly Val Lys Arg Pro Arg Glu Asp His Gly Arg Gly Tyr Phe Glu
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275 280 285

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290 295 300

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Val Thr Glu Lys Ile Pro Val Arg His Leu Tyr Thr Lys Asp Ile Asp
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Pro Ile Pro Glu Glu Tyr Thr Phe Ile Gln Asn Val Pro Leu Glu Asp
450 455 460

Arg Val Arg Gly Pro Lys Gly Pro Glu Glu Lys Lys Asp Cys Glu Val
465 470 475 480

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Gly Lys Phe Ile Glu Ile Ala Ala Arg Lys Lys Arg Asn Phe Ile Leu
545 550 555 560

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625 630 635 640

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645 650 655

Ala Leu Pro Pro Glu Lys Lys Gln Asn Thr Gly Ser Lys Lys Ser Asn
660 665 670

Lys Asn Lys Ser Gly Lys Asn Gln Phe Asn Arg Gly Gly His Arg
675 680 685

Gly Arg Gly Gly Phe Asn Met Arg Gly Asn Phe Arg Gly Gly Ala
690 695 700

Pro Gly Asn Arg Gly Gly Tyr Asn Arg Arg Gly Asn Met Pro Gln Arg
705 710 715 720

Gly Gly Gly Gly Gly Ser Gly Gly Ile Gly Tyr Pro Tyr Pro Arg
725 730 735

Ala Pro Val Phe Pro Gly Arg Gly Ser Tyr Ser Asn Arg Gly Asn Tyr
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755 760 765

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gaa ctg agt cgt tat cca gag gac aag att act cct gag aat ttg ccc Glu Leu Ser Arg Tyr Pro Glu Asp Lys Ile Thr Pro Glu Asn Leu Pro 125 130 135	734
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345

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1454

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1502

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1550

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1886

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1934

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1982

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 575 580 585

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Gln	Lys	Leu	Lys	Lys	Phe	Leu	Asn	Lys	Leu	Ala	Glu	Glu	Arg	Arg	Gln	
							830					835			840	

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aag aag gaa act taa gatgtgcagg gagatttaat gatttcaaag aaaataatgg 2901
Lys Lys Glu Thr
845

ttctttgttt ttaatgttaa cctttttaa atacaatact gatagttaga agaaaactat 2961
tgtactctt tggtagtg gagaataat agatgtctgt tcattgttta agtgttatag 3021
caaaaaaaaaat acacatatgg ttaagttaat gaatagttt tggttatca gaatggcaac 3081
agacagaagt actttgtaga gattgacttc ctaagctact taagacaact tgcaccacta 3141
agaaaaaaaaat gtagaaccat ttggaaaaat gaaatttgt agttccaagt ttcaaagaaa 3201
tgtcaacatt ttattccatt caataaagaa caaaaccaat agtgtttta ttactttcat 3261
ctgaaacatt ccatgtttta atctgagcct tgcagactt cattggagt ttgaaccgt 3321
tttggtgca tttcattttt ggagaactta attaacgtga gattggcaat tgaaatgcag 3381
gtgcagtttt ctgttaatgt catgctgtt tttaggtaat aagaaatatt aagtaattgg 3441
cttttagattt tgtaattttt ttccctgagt tcctgctaga tttcgattt tagtagtcaa 3501
tgtatttca gtgaaatgca aaaatattcc cgttatctt gaccagtatt aatttttag 3561
atcttactgc ttgtcacttg aatccgtga ttgtcataca tctctggat aagcaacatt 3621
tgattttga agtgtgtaga ccatctttc atatttcaa gatgttaatt tacattctg 3681
cattttaaa acagttggc cataatccta gatgcacgct tctaattcat gtacctgcac 3741
atgtgacctt tgtgaacaga aatttgcatt tataattgt gttacttgc aactttctgg 3801
ttatatactg cttatatctg tggattcaag ttactgaatgaaatccaaat aaaaagaaaa 3861
cccttaggcca tgttaattgg ttatacatgt ttggaaatgtt aaaaaaaaaa aaaaaaaaaa 3921
aaaaaaaaaa aa 3933

<210> 22
<211> 847
<212> PRT
<213> Homo sapiens

<400> 22

Met Ser Lys Ser Phe Gln Gln Ser Ser Leu Ser Arg Asp Ser Gln Gly
1 5 10 15

His Gly Arg Asp Leu Ser Ala Ala Gly Ile Gly Leu Leu Ala Ala Ala
20 25 30

Thr Gln Ser Leu Ser Met Pro Ala Ser Leu Gly Arg Met Asn Gln Gly
35 40 45

Thr Ala Arg Leu Ala Ser Leu Met Asn Leu Gly Met Ser Ser Ser Leu
50 55 60

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Asn Gln Gln Gly Ala His Ser Ala Leu Ser Ser Ala Ser Thr Ser Ser
65 70 75 80

His Asn Leu Gln Ser Ile Phe Asn Ile Gly Ser Arg Gly Pro Leu Pro
85 90 95

Leu Ser Ser Gln His Arg Gly Asp Ala Asp Gln Ala Ser Asn Ile Leu
100 105 110

Ala Ser Phe Gly Leu Ser Ala Arg Asp Leu Asp Glu Leu Ser Arg Tyr
115 120 125

Pro Glu Asp Lys Ile Thr Pro Glu Asn Leu Pro Gln Ile Leu Leu Gln
130 135 140

Leu Lys Arg Arg Arg Thr Glu Glu Gly Pro Thr Leu Ser Tyr Gly Arg
145 150 155 160

Asp Gly Arg Ser Ala Thr Arg Glu Pro Pro Tyr Arg Val Pro Arg Asp
165 170 175

Asp Trp Glu Glu Lys Arg His Phe Arg Arg Asp Ser Phe Asp Asp Arg
180 185 190

Gly Pro Ser Leu Asn Pro Val Leu Asp Tyr Asp His Gly Ser Arg Ser
195 200 205

Gln Glu Ser Gly Tyr Tyr Asp Arg Met Asp Tyr Glu Asp Asp Arg Leu
210 215 220

Arg Asp Gly Glu Arg Cys Arg Asp Asp Ser Phe Phe Gly Glu Thr Ser
225 230 235 240

His Asn Tyr His Lys Phe Asp Ser Glu Tyr Glu Arg Met Gly Arg Gly
245 250 255

Pro Gly Pro Leu Gln Glu Arg Ser Leu Phe Glu Lys Lys Arg Gly Ala
260 265 270

Pro Pro Ser Ser Asn Ile Glu Asp Phe His Gly Leu Leu Pro Lys Gly
275 280 285

Tyr Pro His Leu Cys Ser Ile Cys Asp Leu Pro Val His Ser Asn Lys
290 295 300

Glu Trp Ser Gln His Ile Asn Gly Ala Ser His Ser Arg Arg Cys Gln
305 310 315 320

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Leu Leu Leu Glu Ile Tyr Pro Glu Trp Asn Pro Asp Asn Asp Thr Gly
325 330 335

His Thr Met Gly Asp Pro Phe Met Leu Gln Gln Ser Thr Asn Pro Ala
340 345 350

Pro Gly Ile Leu Gly Pro Pro Pro Ser Phe His Leu Gly Gly Pro
355 360 365

Ala Val Gly Pro Arg Gly Asn Leu Gly Ala Gly Asn Gly Asn Leu Gln
370 375 380

Gly Pro Arg His Met Gln Lys Gly Arg Val Glu Thr Ser Arg Val Val
385 390 395 400

His Ile Met Asp Phe Gln Arg Gly Lys Asn Leu Arg Tyr Gln Leu Leu
405 410 415

Gln Leu Val Glu Pro Phe Gly Val Ile Ser Asn His Leu Ile Leu Asn
420 425 430

Lys Ile Asn Glu Ala Phe Ile Glu Met Ala Thr Thr Glu Asp Ala Gln
435 440 445

Ala Ala Val Asp Tyr Tyr Thr Thr Pro Ala Leu Val Phe Gly Lys
450 455 460

Pro Val Arg Val His Leu Ser Gln Lys Tyr Lys Arg Ile Lys Lys Pro
465 470 475 480

Glu Gly Lys Pro Asp Gln Lys Phe Asp Gln Lys Gln Glu Leu Gly Arg
485 490 495

Val Ile His Leu Ser Asn Leu Pro His Ser Gly Tyr Ser Asp Ser Ala
500 505 510

Val Leu Lys Leu Ala Glu Pro Tyr Gly Lys Ile Lys Asn Tyr Ile Leu
515 520 525

Met Arg Met Lys Ser Gln Ala Phe Ile Glu Met Glu Thr Arg Glu Asp
530 535 540

Ala Met Ala Met Val Asp His Cys Leu Lys Lys Ala Leu Trp Phe Gln
545 550 555 560

Gly Arg Cys Val Lys Val Asp Leu Ser Glu Lys Tyr Lys Lys Leu Val

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565

570

575

Leu Arg Ile Pro Asn Arg Gly Ile Asp Leu Leu Lys Lys Asp Lys Ser
580 585 590

Arg Lys Arg Ser Tyr Ser Pro Asp Gly Lys Glu Ser Pro Ser Asp Lys
595 600 605

Lys Ser Lys Thr Asp Gly Ser Gln Lys Thr Glu Ser Ser Thr Glu Gly
610 615 620

Lys Glu Gln Glu Glu Lys Ser Gly Glu Asp Gly Glu Lys Asp Thr Lys
625 630 635 640

Asp Asp Gln Thr Glu Gln Glu Pro Asn Met Leu Leu Glu Ser Glu Asp
645 650 655

Glu Leu Leu Val Asp Glu Glu Glu Ala Ala Ala Leu Leu Glu Ser Gly
660 665 670

Ser Ser Val Gly Asp Glu Thr Asp Leu Ala Asn Leu Gly Asp Val Ala
675 680 685

Ser Asp Gly Lys Lys Glu Pro Ser Asp Lys Ala Val Lys Lys Asp Gly
690 695 700

Ser Ala Ser Ala Ala Ala Lys Lys Lys Leu Lys Lys Val Asp Lys Ile
705 710 715 720

Glu Glu Leu Asp Gln Glu Asn Glu Ala Ala Leu Glu Asn Gly Ile Lys
725 730 735

Asn Glu Glu Asn Thr Glu Pro Gly Ala Glu Ser Ser Glu Asn Ala Asp
740 745 750

Asp Pro Asn Lys Asp Thr Ser Glu Asn Ala Asp Gly Gln Ser Asp Glu
755 760 765

Asn Lys Asp Asp Tyr Thr Ile Pro Asp Glu Tyr Arg Ile Gly Pro Tyr
770 775 780

Gln Pro Asn Val Pro Val Gly Ile Asp Tyr Val Ile Pro Lys Thr Gly
785 790 795 800

Phe Tyr Cys Lys Leu Cys Ser Leu Phe Tyr Thr Asn Glu Glu Val Ala
805 810 815

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Lys Asn Thr His Cys Ser Ser Leu Pro His Tyr Gln Lys Leu Lys Lys
820 825 830

Phe Leu Asn Lys Leu Ala Glu Glu Arg Arg Gln Lys Lys Glu Thr
835 840 845

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<212> DNA
<213> Homo sapiens

<220>
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<222> (47)..(1018)

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Met Ala Ser
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atc tgg gtt gga cac cga gga aca gta aga gat tat cca gac ttt agc 103
Ile Trp Val Gly His Arg Gly Thr Val Arg Asp Tyr Pro Asp Phe Ser
5 10 15

cca tca gtg gat gct gaa gct att cag aaa gca atc aga gga att gga 151
Pro Ser Val Asp Ala Glu Ala Ile Gln Lys Ala Ile Arg Gly Ile Gly
20 25 30 35

act gat gag aaa atg ctc atc agc att ctg act gag agg tca aat gca 199
Thr Asp Glu Lys Met Leu Ile Ser Ile Leu Thr Glu Arg Ser Asn Ala
40 45 50

cag cgg cag ctg att gtt aag gaa tat caa gca gca tat gga aag gag 247
Gln Arg Gln Leu Ile Val Lys Glu Tyr Gln Ala Ala Tyr Gly Lys Glu
55 60 65

ctg aaa gat gac ttg aag ggt gat ctc tct ggc cac ttt gag cat ctc 295
Leu Lys Asp Asp Leu Lys Gly Asp Leu Ser Gly His Phe Glu His Leu
70 75 80

atg gtg gcc cta gtg act cca cca gca gtc ttt gat gca aag cag cta 343
Met Val Ala Leu Val Thr Pro Pro Ala Val Phe Asp Ala Lys Gln Leu
85 90 95

aag aaa tcc atg aag ggc gcg gga aca aac gaa gat gcc ttg att gaa 391
Lys Lys Ser Met Lys Gly Ala Gly Thr Asn Glu Asp Ala Leu Ile Glu
100 105 110 115

atc tta act acc agg aca agc agg caa atg aag gat atc tct caa gcc 439
Ile Leu Thr Thr Arg Thr Ser Arg Gln Met Lys Asp Ile Ser Gln Ala
120 125 130

tat tat aca gta tac aag aag agt ctt gga gat gac att agt tcc gaa 487
Tyr Tyr Thr Val Tyr Lys Lys Ser Leu Gly Asp Asp Ile Ser Ser Glu
135 140 145

aca tct ggt gac ttc cgg aaa gct ctg ttg act ttg gca gat ggc aga 535
Thr Ser Gly Asp Phe Arg Lys Ala Leu Leu Thr Leu Ala Asp Gly Arg
150 155 160

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aga gat gaa agt ctg aaa gtg gat gag cat ctg gcc aaa caa gat gcc Arg Asp Glu Ser Leu Lys Val Asp Glu His Leu Ala Lys Gln Asp Ala 165 170 175	583
cag att ctc tat aaa gct ggt gag aac aga tgg ggc acg gat gaa gac Gln Ile Leu Tyr Lys Ala Gly Glu Asn Arg Trp Gly Thr Asp Glu Asp 180 185 190 195	631
aaa ttc act gag atc ctg tgt tta agg agc ttt cct caa tta aaa cta Lys Phe Thr Glu Ile Leu Cys Leu Arg Ser Phe Pro Gln Leu Lys Leu 200 205 210	679
aca ttt gat gaa tac aga aat atc agc caa aag gac att gtg gac agc Thr Phe Asp Glu Tyr Arg Asn Ile Ser Gln Lys Asp Ile Val Asp Ser 215 220 225	727
ata aaa gga gaa tta tct ggg cat ttt gaa gac tta ctg ttg gcc ata Ile Lys Gly Glu Leu Ser Gly His Phe Glu Asp Leu Leu Leu Ala Ile 230 235 240	775
gtt aat tgt gtg agg aac acg ccg gcc ttt tta gcc gaa aga ctg cat Val Asn Cys Val Arg Asn Thr Pro Ala Phe Leu Ala Glu Arg Leu His 245 250 255	823
cga gcc ttg aag ggt att gga act gat gag ttt act ctg aac cga ata Arg Ala Leu Lys Gly Ile Gly Thr Asp Glu Phe Thr Leu Asn Arg Ile 260 265 270 275	871
atg gtg tcc aga tca gaa att gac ctt ttg gac att cga aca gag ttc Met Val Ser Arg Ser Glu Ile Asp Leu Leu Asp Ile Arg Thr Glu Phe 280 285 290	919
aag aag cat tat ggc tat tcc cta tat tca gca att aaa tcg gat act Lys Lys His Tyr Gly Tyr Ser Leu Tyr Ser Ala Ile Lys Ser Asp Thr 295 300 305	967
tct gga gac tat gaa atc aca ctc tta aaa atc tgt ggt gga gat gac Ser Gly Asp Tyr Glu Ile Thr Leu Leu Lys Ile Cys Gly Gly Asp Asp 310 315 320	1015
tga accaagaaga taatctccaa aggtccacga tgggctttcc caacagctcc	1068
accttacttc ttctcatact attaagaga acaagcaa ataaacagca acttgttttc	1128
ctaacaggaa ttttcattgt tctataacaa caacaacaaa agcgattatt attttagagc	1188
atctcattta taatgttagca gctcataaat gaaattgaaa atggattaa agatctgcaa	1248
ctactatcca acttatattt ctgcttcaa agttaagaat ctttatagtt ctactccatt	1308
aaatataaag caagataata aaacggaatt c	1339

<210> 24
<211> 323
<212> PRT
<213> Homo sapiens

<400> 24

Met Ala Ser Ile Trp Val Gly His Arg Gly Thr Val Arg Asp Tyr Pro
1 5 10 15

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Asp Phe Ser Pro Ser Val Asp Ala Glu Ala Ile Gln Lys Ala Ile Arg
20 25 30

Gly Ile Gly Thr Asp Glu Lys Met Leu Ile Ser Ile Leu Thr Glu Arg
35 40 45

Ser Asn Ala Gln Arg Gln Leu Ile Val Lys Glu Tyr Gln Ala Ala Tyr
50 55 60

Gly Lys Glu Leu Lys Asp Asp Leu Lys Gly Asp Leu Ser Gly His Phe
65 70 75 80

Glu His Leu Met Val Ala Leu Val Thr Pro Pro Ala Val Phe Asp Ala
85 90 95

Lys Gln Leu Lys Lys Ser Met Lys Gly Ala Gly Thr Asn Glu Asp Ala
100 105 110

Leu Ile Glu Ile Leu Thr Thr Arg Thr Ser Arg Gln Met Lys Asp Ile
115 120 125

Ser Gln Ala Tyr Tyr Thr Val Tyr Lys Lys Ser Leu Gly Asp Asp Ile
130 135 140

Ser Ser Glu Thr Ser Gly Asp Phe Arg Lys Ala Leu Leu Thr Leu Ala
145 150 155 160

Asp Gly Arg Arg Asp Glu Ser Leu Lys Val Asp Glu His Leu Ala Lys
165 170 175

Gln Asp Ala Gln Ile Leu Tyr Lys Ala Gly Glu Asn Arg Trp Gly Thr
180 185 190

Asp Glu Asp Lys Phe Thr Glu Ile Leu Cys Leu Arg Ser Phe Pro Gln
195 200 205

Leu Lys Leu Thr Phe Asp Glu Tyr Arg Asn Ile Ser Gln Lys Asp Ile
210 215 220

Val Asp Ser Ile Lys Gly Glu Leu Ser Gly His Phe Glu Asp Leu Leu
225 230 235 240

Leu Ala Ile Val Asn Cys Val Arg Asn Thr Pro Ala Phe Leu Ala Glu
245 250 255

Arg Leu His Arg Ala Leu Lys Gly Ile Gly Thr Asp Glu Phe Thr Leu
260 265 270

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Asn Arg Ile Met Val Ser Arg Ser Glu Ile Asp Leu Leu Asp Ile Arg
275 280 285

Thr Glu Phe Lys Lys His Tyr Gly Tyr Ser Leu Tyr Ser Ala Ile Lys
290 295 300

Ser Asp Thr Ser Gly Asp Tyr Glu Ile Thr Leu Leu Lys Ile Cys Gly
305 310 315 320

Gly Asp Asp

<210> 25
<211> 1659
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (152)..(1201)

<400> 25
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acatcctcca cctcttttgg tccagcgagc gttgccgggc cagggtaaagg cgaggggctc 120
cgacggcgcg gacggagcga agcgccgagc c atg gcg cac caa acg ggc atc 172
Met Ala His Gln Thr Gly Ile
1 5

cac gcc acg gaa gag ctg aag gaa ttc ttt gcc aag gca cgg gct ggc 220
His Ala Thr Glu Glu Leu Lys Glu Phe Phe Ala Lys Ala Arg Ala Gly
10 15 20

tct gtg cgg ctc atc aag gtt gtg att gag gac gag cag ctc gtg ctg 268
Ser Val Arg Leu Ile Lys Val Val Ile Glu Asp Glu Gln Leu Val Leu
25 30 35

ggt gcc tcg cag gag cca gta ggc cgc tgg gat cag gac tat gac agg 316
Gly Ala Ser Gln Glu Pro Val Gly Arg Trp Asp Gln Asp Tyr Asp Arg
40 45 50 55

gcc gtg ctg cca ctg ctg gac gcc cag cag ccc tgc tac ctg ctc tac 364
Ala Val Leu Pro Leu Asp Ala Gln Gln Pro Cys Tyr Leu Leu Tyr
60 65 70

cgc ctc gac tca cag aat gct cag ggc ttc gaa tgg ctc ttc ctc gcc 412
Arg Leu Asp Ser Gln Asn Ala Gln Gly Phe Glu Trp Leu Phe Leu Ala
75 80 85

tgg tcg cct gat aac tcc ccc gtg cgg ctg aag atg ctg tac gcg gcc 460
Trp Ser Pro Asp Asn Ser Pro Val Arg Leu Lys Met Leu Tyr Ala Ala
90 95 100

acg cgg gcc aca gtg aaa aag gag ttt gga ggt ggc cac atc aag gat 508
Thr Arg Ala Thr Val Lys Lys Glu Phe Gly Gly Gly His Ile Lys Asp

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105

110

115

gag ctc ttc ggg act gtg aag gat gac ctc tct ttt gct ggg tac cag Glu Leu Phe Gly Thr Val Lys Asp Asp Leu Ser Phe Ala Gly Tyr Gln	556
120 125 130 135	
aaa cac ctg tcg tcc tgt gcg gca cct gcc ccg ctg acc tcg gct gag Lys His Leu Ser Ser Cys Ala Ala Pro Ala Pro Leu Thr Ser Ala Glu	604
140 145 150	
aga gag ctc cag cag atc cgc att aac gag gtg aag aca gag atc agt Arg Glu Leu Gln Gln Ile Arg Ile Asn Glu Val Lys Thr Glu Ile Ser	652
155 160 165	
gtg gaa agc aag cac cag acc ctg cag ggc ctc gcc ttc ccc ctg cag Val Glu Ser Lys His Gln Thr Leu Gln Gly Leu Ala Phe Pro Leu Gln	700
170 175 180	
cct gag gcc cag cggt gca ctc cag cag ctc aag cag aaa atg gtc aac Pro Glu Ala Gln Arg Ala Leu Gln Gln Leu Lys Gln Lys Met Val Asn	748
185 190 195	
tac atc cag atg aag ctg gac cta gag cggt gaa acc att gag ctg gtg Tyr Ile Gln Met Lys Leu Asp Leu Glu Arg Glu Thr Ile Glu Leu Val	796
200 205 210 215	
cac aca gag ccc acg gat gtg gcc cag ctg ccc tcc cgg gtg ccc cga His Thr Glu Pro Thr Asp Val Ala Gln Leu Pro Ser Arg Val Pro Arg	844
220 225 230	
gat gct gcc cgc tac cac ttc ttc ctc tac aag cac acc cat gag ggc Asp Ala Ala Arg Tyr His Phe Phe Leu Tyr Lys His Thr His Glu Gly	892
235 240 245	
gac ccc ctt gag tct gta gtg ttc atc tac tcc atg ccg ggg tac aag Asp Pro Leu Glu Ser Val Val Phe Ile Tyr Ser Met Pro Gly Tyr Lys	940
250 255 260	
tgc agc atc aag gag cga atg ctc tac tcc agc tgc aag agc cgc ctc Cys Ser Ile Lys Glu Arg Met Leu Tyr Ser Ser Cys Lys Ser Arg Leu	988
265 270 275	
ctc gac tcc gtg gag cag gac ttc cat ctg gag atc gcc aag aaa att Leu Asp Ser Val Glu Gln Asp Phe His Leu Glu Ile Ala Lys Lys Ile	1036
280 285 290 295	
gag att ggc gat ggg gca gag ctg acg gca gag ttc ctc tac gac gag Glu Ile Gly Asp Gly Ala Glu Leu Thr Ala Glu Phe Leu Tyr Asp Glu	1084
300 305 310	
gtg cac ccc aag caa cac gcc ttc aag cag gcc ttc gcc aag ccc aag Val His Pro Lys Gln His Ala Phe Lys Gln Ala Phe Ala Lys Pro Lys	1132
315 320 325	
ggc cca ggg ggc aag cgg ggc cat aag cgc ctc atc cgc ggc ccg ggt Gly Pro Gly Gly Lys Arg Gly His Lys Arg Leu Ile Arg Gly Pro Gly	1180
330 335 340	
gaa aat ggg gat gac agc tag gaggctggag cagggccggc cacgtgtgga Glu Asn Gly Asp Asp Ser	1231
345	
ctgtggggct gcccaccttc cgctccctgc caccatcctc cttcctggc tccaggaaag	1291

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tgtttctggg aggtcaggag ggctggcagc tgaacgcact tgcagcgtcc gagggccacc	1351
gggctggcat ttgtgaccc ttccctgttg ctgtccctgc atctcgctg tgtgccagg	1411
gtgtccgggg accctgcctg gctggcttaa gggggctggg tcagggcct ggcataacc	1471
tggcctcccg gggagctgag actagggtcc cagcacagcc cagaaacctt tggccacaag	1531
aagtgggtc agtcagggtcc gggcagggg tcactgcagt ttggatggg tgaatgcgt	1591
attttctaaa gaataaaata ttttaaatc aaaaaaaaaaaaaaaa aaaaaaaaaaaaaa	1651
aa	1659

<210> 26

<211> 349

<212> PRT

<213> Homo sapiens

<400> 26

Met Ala His Gln Thr Gly Ile His Ala Thr Glu Glu Leu Lys Glu Phe
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Phe Ala Lys Ala Arg Ala Gly Ser Val Arg Leu Ile Lys Val Val Ile
20 25 30

Glu Asp Glu Gln Leu Val Leu Gly Ala Ser Gln Glu Pro Val Gly Arg
35 40 45

Trp Asp Gln Asp Tyr Asp Arg Ala Val Leu Pro Leu Leu Asp Ala Gln
50 55 60

Gln Pro Cys Tyr Leu Leu Tyr Arg Leu Asp Ser Gln Asn Ala Gln Gly
65 70 75 80

Phe Glu Trp Leu Phe Leu Ala Trp Ser Pro Asp Asn Ser Pro Val Arg
85 90 95

Leu Lys Met Leu Tyr Ala Ala Thr Arg Ala Thr Val Lys Lys Glu Phe
100 105 110

Gly Gly Gly His Ile Lys Asp Glu Leu Phe Gly Thr Val Lys Asp Asp
115 120 125

Leu Ser Phe Ala Gly Tyr Gln Lys His Leu Ser Ser Cys Ala Ala Pro
130 135 140

Ala Pro Leu Thr Ser Ala Glu Arg Glu Leu Gln Gln Ile Arg Ile Asn
145 150 155 160

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Glu Val Lys Thr Glu Ile Ser Val Glu Ser Lys His Gln Thr Leu Gln
165 170 175

Gly Leu Ala Phe Pro Leu Gln Pro Glu Ala Gln Arg Ala Leu Gln Gln
180 185 190

Leu Lys Gln Lys Met Val Asn Tyr Ile Gln Met Lys Leu Asp Leu Glu
195 200 205

Arg Glu Thr Ile Glu Leu Val His Thr Glu Pro Thr Asp Val Ala Gln
210 215 220

Leu Pro Ser Arg Val Pro Arg Asp Ala Ala Arg Tyr His Phe Phe Leu
225 230 235 240

Tyr Lys His Thr His Glu Gly Asp Pro Leu Glu Ser Val Val Phe Ile
245 250 255

Tyr Ser Met Pro Gly Tyr Lys Cys Ser Ile Lys Glu Arg Met Leu Tyr
260 265 270

Ser Ser Cys Lys Ser Arg Leu Leu Asp Ser Val Glu Gln Asp Phe His
275 280 285

Leu Glu Ile Ala Lys Lys Ile Glu Ile Gly Asp Gly Ala Glu Leu Thr
290 295 300

Ala Glu Phe Leu Tyr Asp Glu Val His Pro Lys Gln His Ala Phe Lys
305 310 315 320

Gln Ala Phe Ala Lys Pro Lys Gly Pro Gly Gly Lys Arg Gly His Lys
325 330 335

Arg Leu Ile Arg Gly Pro Gly Glu Asn Gly Asp Asp Ser
340 345

<210> 27
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<212> DNA
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<220>
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<222> (91)..(837)

<400> 27
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gttctcgagt ccgcgcgttt cgtcacccgcc atg tcg gga ggt ggt gtg att cgt 114
Met Ser Gly Gly Gly Val Ile Arg

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1

5

ggc ccc gca ggg aac aac gat tgc cgc atc tac gtg ggt aac tta cct		162
Gly Pro Ala Gly Asn Asn Asp Cys Arg Ile Tyr Val Gly Asn Leu Pro	10 15 20	
cca gac atc cga acc aag gac att gag gac gtg ttc tac aaa tac ggc		210
Pro Asp Ile Arg Thr Lys Asp Ile Glu Asp Val Phe Tyr Lys Tyr Gly	25 30 35 40	
gct atc cgc gac atc gac ctc aag aat cgc cgc ggg gga ccg ccc ttc		258
Ala Ile Arg Asp Ile Asp Leu Lys Asn Arg Arg Gly Gly Pro Pro Phe	45 50 55	
gcc ttc gtt gag ttc gag gac ccg cga gac gcg gaa gac gcg gtg tat		306
Ala Phe Val Glu Phe Glu Asp Pro Arg Asp Ala Glu Asp Ala Val Tyr	60 65 70	
ggg cgc gac ggc tat gat tac gat ggg tac cgt ctg cgg gtg gag ttt		354
Gly Arg Asp Gly Tyr Asp Tyr Asp Gly Tyr Arg Leu Arg Val Glu Phe	75 80 85	
cct cga agc ggc cgt gga aca ggc cga ggc ggc ggc ggg ggt gga ggt		402
Pro Arg Ser Gly Arg Gly Thr Gly Arg Gly Gly Gly Gly Gly Gly Gly	90 95 100	
ggc gga gct ccc cga ggt cgc tat ggc ccc cca tcc agg cgg tct gaa		450
Gly Gly Ala Pro Arg Gly Arg Tyr Gly Pro Pro Ser Arg Arg Ser Glu	105 110 115 120	
aac aga gtg gtt gtc tct gga ctg cct cca agt gga agt tgg cag gat		498
Asn Arg Val Val Ser Gly Leu Pro Pro Ser Gly Ser Trp Gln Asp	125 130 135	
tta aag gat cac atg cgt gaa gca ggt gat gta tgt tat gct gat gtt		546
Leu Lys Asp His Met Arg Glu Ala Gly Asp Val Cys Tyr Ala Asp Val	140 145 150	
tac cga gat ggc act ggt gtc gtg gag ttt gta cgg aaa gaa gat atg		594
Tyr Arg Asp Gly Thr Gly Val Val Val Glu Phe Val Arg Lys Glu Asp Met	155 160 165	
acc tat gca gtt cga aaa ctg gat aac act aag ttt aga tct cat gag		642
Thr Tyr Ala Val Arg Lys Leu Asp Asn Thr Lys Phe Arg Ser His Glu	170 175 180	
gga gaa act gcc tac atc cgg gtt aaa gtt gat ggg ccc aga agt cca		690
Gly Glu Thr Ala Tyr Ile Arg Val Lys Val Asp Gly Pro Arg Ser Pro	185 190 195 200	
agt tat gga aga tct cga tct cga agc cgt agt cgt agc aga agc cgt		738
Ser Tyr Gly Arg Ser Arg Ser Arg Ser Arg Ser Arg Ser Arg Ser Arg	205 210 215	
agc aga agc aac agc agg agt cgc agt tac tcc cca agg aga agc aga		786
Ser Arg Ser Asn Ser Arg Ser Arg Ser Tyr Ser Pro Arg Arg Ser Arg	220 225 230	
gga tca cca cgc tat tct ccc cgt cat agc aga tct cgc tct cgt aca		834
Gly Ser Pro Arg Tyr Ser Pro Arg His Ser Arg Ser Arg Ser Arg Thr	235 240 245	
taa gatgatttgtt gacactttttt gtagaaccacca tgggttatac agttttccctt		887

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tattcagtagtac aatctttca tttttaatt caaactgttt tgttcagaat gggctaaagt	947
gttgaattgc attcttgtaa tatcccttg ctcctaacat ctacattccc ttcgtgtctt	1007
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35 40 45

Asn Arg Arg Gly Gly Pro Pro Phe Ala Phe Val Glu Phe Glu Asp Pro
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Arg Asp Ala Glu Asp Ala Val Tyr Gly Arg Asp Gly Tyr Asp Tyr Asp
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Gly Tyr Arg Leu Arg Val Glu Phe Pro Arg Ser Gly Arg Gly Thr Gly
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Arg Gly Gly Gly Gly Gly Gly Ala Pro Arg Gly Arg Tyr
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Gly Pro Pro Ser Arg Arg Ser Glu Asn Arg Val Val Val Ser Gly Leu
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Pro Pro Ser Gly Ser Trp Gln Asp Leu Lys Asp His Met Arg Glu Ala
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Gly Asp Val Cys Tyr Ala Asp Val Tyr Arg Asp Gly Thr Gly Val Val
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Glu Phe Val Arg Lys Glu Asp Met Thr Tyr Ala Val Arg Lys Leu Asp
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Asn Thr Lys Phe Arg Ser His Glu Gly Glu Thr Ala Tyr Ile Arg Val
180 185 190

Lys Val Asp Gly Pro Arg Ser Pro Ser Tyr Gly Arg Ser Arg Ser Arg
195 200 205

Ser Arg Ser Arg Ser Arg Ser Arg Ser Asn Ser Arg Ser Arg
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Arg Val Leu Asp Ala Ser Trp Tyr Ser Pro Gly Thr Arg Glu Ala Arg
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Thr His Val Val Val Tyr Asp Gly Glu His Leu Gly Ser Phe Tyr Ala
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110 115 120 125

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Val Leu Asn Gly Gly Phe Arg Asn Trp Leu Lys Glu Gly His Pro Val
130 135 140

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Thr Ser Glu Pro Ser Arg Pro Glu Pro Ala Val Phe Lys Ala Thr Leu
145 150 155

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cgt ggt gcc gtc aac atg cct ttc atg gac ttc ctg act gag gat ggc Arg Gly Ala Val Asn Met Pro Phe Met Asp Phe Leu Thr Glu Asp Gly 210 215 220	735
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gcc tgc cac gtg gcc ttg gct gcc tac ctc tgc ggc aag cct gat gtg Ala Cys His Val Ala Leu Ala Ala Tyr Leu Cys Gly Lys Pro Asp Val 255 260 265	879
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35 40 45

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Trp Trp Met Phe Arg Val Phe Gly His Arg Thr Val Ser Val Leu Asn
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Phe Gln Leu Val Asp Ser Arg Ser Gln Gly Arg Phe Leu Gly Thr Glu
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195 200 205

Val Asn Met Pro Phe Met Asp Phe Leu Thr Glu Asp Gly Phe Glu Lys
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5 10 15

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Lys Ala Leu Asp Ile Ala Glu Asn Glu Met Pro Gly Leu Met Arg Met
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 70 75 80

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ctc tac aag atg atg gcc aat ggg atc ctc aag gtg cct gcc atc aat 584
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 165 170 175

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Cys	Ala	Gln	Ala	Leu	Arg	Gly	Phe	Gly	Ala	Arg	Val	Ile	Ile	Thr	Glu	
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Ile	Asp	Pro	Ile	Asn	Ala	Leu	Gln	Ala	Ala	Met	Glu	Gly	Tyr	Glu	Val	
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Thr	Thr	Met	Asp	Glu	Ala	Cys	Gln	Glu	Gly	Asn	Ile	Phe	Val	Thr	Thr	
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Lys	Lys	Leu	Asp	Glu	Ala	Val	Ala	Glu	Ala	His	Leu	Gly	Lys	Leu	Asn	
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Cys Ile Glu Gln Thr Leu Tyr Phe Lys Asp Gly Pro Leu Asn Met Ile
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His Pro Ser Phe Val Met Ser Asn Ser Phe Thr Asn Gln Val Met Ala
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Cys Gly Leu Ile Asn Ser Val Lys Phe Tyr Gln Ala Ser Thr Ser Glu				
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Leu Phe Asn His Glu Ser Pro Arg Arg Gly Ala Asn Phe Val Thr Arg				
210	215		220	
aaa att agc cg ^g tca gta gct aag att tac ctt gga caa ctg gaa t ^t g				901
Lys Ile Ser Arg Ser Val Ala Lys Ile Tyr Leu Gly Gln Leu Glu Cys				
225	230		235	
t ^t c agt ttg gga aat ctg gat gcc aaa cga gat tgg ggc cat gcc aag				949
Phe Ser Leu Gly Asn Leu Asp Ala Lys Arg Asp Trp Gly His Ala Lys				
240	245		250	
gac tat gtg gag gct atg tgg ttg atg ttg cag aat gat gag ccg gag				997
Asp Tyr Val Glu Ala Met Trp Leu Met Leu Gln Asn Asp Glu Pro Glu				
255	260		265	
gac ttc gtt ata gct act ggg gag gtc cat agt gtc cg ^g gaa ttt gtc				1045
Asp Phe Val Ile Ala Thr Gly Glu Val His Ser Val Arg Glu Phe Val				
270	275		280	285
gag aaa tca ttc ttg cac att gga aaa acc att gtg tgg gaa gga aag				1093
Glu Lys Ser Phe Leu His Ile Gly Lys Thr Ile Val Trp Glu Gly Lys				
290	295		300	
aat gaa aat gaa gtg ggc aga t ^t g aaa gag acc ggc aaa gtt cac gtg				1141
Asn Glu Asn Glu Val Gly Arg Cys Lys Glu Thr Gly Lys Val His Val				
305	310		315	
act gtg gat ctc aag tac tac cg ^g cca act gaa gtg gac ttt ctg cag				1189
Thr Val Asp Leu Lys Tyr Tyr Arg Pro Thr Glu Val Asp Phe Leu Gln				
320	325		330	
ggc gac tgc acc aaa gcg aaa cag aag ctg aac tgg aag ccc cg ^g gtc				1237
Gly Asp Cys Thr Lys Ala Lys Glu Lys Leu Asn Trp Lys Pro Arg Val				
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gct ttc gat gag ctg gtg agg gag atg gtg cac gcc gac gtg gag ctc				1285
Ala Phe Asp Glu Leu Val Arg Glu Met Val His Ala Asp Val Glu Leu				
350	355		360	365
atg agg aca aac ccc aat gcc tga gcagcgccctc ggagccccggc ccgcccctccg				1339

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Met Arg Thr Asn Pro Asn Ala
370

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35 40 45

Glu Val His Gly Ile Val Arg Arg Ser Ser Ser Phe Asn Thr Gly Arg
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Ile Glu His Leu Tyr Lys Asn Pro Gln Ala His Ile Glu Gly Asn Met
65 70 75 80

Lys Leu His Tyr Gly Asp Leu Thr Asp Ser Thr Cys Leu Val Lys Ile
85 90 95

Ile Asn Glu Val Lys Pro Thr Glu Ile Tyr Asn Leu Gly Ala Gln Ser
100 105 110

His Val Lys Ile Ser Phe Asp Leu Ala Glu Tyr Thr Ala Asp Val Asp
115 120 125

Gly Val Gly Thr Leu Arg Leu Leu Asp Ala Val Lys Thr Cys Gly Leu
130 135 140

Ile Asn Ser Val Lys Phe Tyr Gln Ala Ser Thr Ser Glu Leu Tyr Gly
145 150 155 160

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Lys Val Gln Glu Ile Pro Gln Lys Glu Thr Thr Pro Phe Tyr Pro Arg
165 170 175

Ser Pro Tyr Gly Ala Ala Lys Leu Tyr Ala Tyr Trp Ile Val Val Asn
180 185 190

Phe Arg Glu Ala Tyr Asn Leu Phe Ala Val Asn Gly Ile Leu Phe Asn
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His Glu Ser Pro Arg Arg Gly Ala Asn Phe Val Thr Arg Lys Ile Ser
210 215 220

Arg Ser Val Ala Lys Ile Tyr Leu Gly Gln Leu Glu Cys Phe Ser Leu
225 230 235 240

Gly Asn Leu Asp Ala Lys Arg Asp Trp Gly His Ala Lys Asp Tyr Val
245 250 255

Glu Ala Met Trp Leu Met Leu Gln Asn Asp Glu Pro Glu Asp Phe Val
260 265 270

Ile Ala Thr Gly Glu Val His Ser Val Arg Glu Phe Val Glu Lys Ser
275 280 285

Phe Leu His Ile Gly Lys Thr Ile Val Trp Glu Gly Lys Asn Glu Asn
290 295 300

Glu Val Gly Arg Cys Lys Glu Thr Gly Lys Val His Val Thr Val Asp
305 310 315 320

Leu Lys Tyr Tyr Arg Pro Thr Glu Val Asp Phe Leu Gln Gly Asp Cys
325 330 335

Thr Lys Ala Lys Gln Lys Leu Asn Trp Lys Pro Arg Val Ala Phe Asp
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355 360 365

Asn Pro Asn Ala
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gga	cta	gct	gat	aag	aag	atc	tct	cca	aag	aga	gac	aag	gga	ttt	gtg		820
Gly	Leu	Ala	Asp	Lys	Lys	Ile	Ser	Pro	Lys	Arg	Asp	Lys	Gly	Leu	Val		
250				255					260				265				
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Glu	Lys	Leu	Thr	Ala	Tyr	Ala	Met	Thr	Ile	Pro	Phe	Val	Arg	Gln	Gln		
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Val	Tyr	Lys	Lys	Val	Glu	Glu	Lys	Val	Arg	Lys	Gln	Thr	Lys	Gly	Leu		
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tat	cct	gca	cct	ctg	aaa	ata	att	gat	gtg	gtt	aag	act	gga	att	gag		964
Tyr	Pro	Ala	Pro	Leu	Lys	Ile	Ile	Asp	Val	Val	Lys	Thr	Gly	Ile	Glu		
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caa	ggg	agt	gat	gcc	ggt	tat	ctc	tgt	gaa	tct	cag	aaa	ttt	gga	gag		1012
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Leu	Val	Met	Thr	Lys	Glu	Ser	Lys	Ala	Leu	Met	Gly	Leu	Tyr	His	Gly		
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Gln	Val	Leu	Cys	Lys	Lys	Asn	Lys	Phe	Gly	Ala	Pro	Gln	Lys	Asp	Val		
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Lys	His	Leu	Ala	Ile	Leu	Gly	Ala	Gly	Leu	Met	Gly	Ala	Gly	Ile	Ala		
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caa	gtc	tcc	gtg	gat	aag	ggg	cta	aag	act	ata	ctt	aaa	gat	gcc	acc		1204
Gln	Val	Ser	Val	Asp	Lys	Gly	Leu	Lys	Thr	Ile	Leu	Lys	Asp	Ala	Thr		
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ctc	act	gcg	cta	gac	cga	gga	cag	caa	caa	gtg	ttc	aaa	gga	ttt	aat		1252
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gac	aaa	gtg	aag	aag	aaa	gct	cta	aca	tca	ttt	gaa	agg	gat	tcc	atc		1300
Asp	Lys	Val	Lys	Lys	Lys	Ala	Leu	Thr	Ser	Phe	Glu	Arg	Asp	Ser	Ile		
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Phe	Ser	Asn	Leu	Thr	Gly	Gln	Leu	Asp	Tyr	Gln	Gly	Phe	Glu	Lys	Ala		
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Asp	Met	Val	Ile	Glu	Ala	Val	Phe	Glu	Asp	Leu	Ser	Leu	Lys	His	Arg		
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Val	Leu	Lys	Glu	Val	Glu	Ala	Val	Ile	Pro	Asp	His	Cys	Ile	Phe	Ala		
				460				465			470						
agt	aac	aca	tct	gct	ctc	cca	atc	agt	gaa	atc	gct	gct	gtc	agc	aaa		1492
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475

480

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agt gct tca gct gta gca gtt ggt ctc aag cag ggg aag gtc atc att Ser Ala Ser Ala Val Ala Val Gly Leu Lys Gln Gly Lys Val Ile Ile 525 530 535	1636
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gtg gac cgg ctc aag aaa tat gaa gct gcc tat gga aaa cag ttc acc	2260

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Pro Cys Gln Leu Leu Ala Asp His Ala Asn Ser Pro Asn Lys Lys Phe
750 755 760

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Tyr Gln

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Val Ala Val Val Arg Ile Asn Ser Pro Asn Ser Lys Val Asn Thr Leu
50 55 60

Ser Lys Glu Leu His Ser Glu Phe Ser Glu Val Met Asn Glu Ile Trp
65 70 75 80

Ala Ser Asp Gln Ile Arg Ser Ala Val Leu Ile Ser Ser Lys Pro Gly
85 90 95

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Cys Phe Ile Ala Gly Ala Asp Ile Asn Met Leu Ala Ala Cys Lys Thr
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Leu Gln Glu Val Thr Gln Leu Ser Gln Glu Ala Gln Arg Ile Val Glu
115 120 125

Lys Leu Glu Lys Ser Thr Lys Pro Ile Val Ala Ala Ile Asn Gly Ser
130 135 140

Cys Leu Gly Gly Gly Leu Glu Val Ala Ile Ser Cys Gln Tyr Arg Ile
145 150 155 160

Ala Thr Lys Asp Arg Lys Thr Val Leu Gly Thr Pro Glu Val Leu Leu
165 170 175

Gly Ala Leu Pro Gly Ala Gly Gly Thr Gln Arg Leu Pro Lys Met Val
180 185 190

Gly Val Pro Ala Ala Leu Asp Met Met Leu Thr Gly Arg Ser Ile Arg
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Ala Asp Arg Ala Lys Lys Met Gly Leu Val Asp Gln Leu Val Glu Pro
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Leu Gly Pro Gly Leu Lys Pro Pro Glu Glu Arg Thr Ile Glu Tyr Leu
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Glu Glu Val Ala Ile Thr Phe Ala Lys Gly Leu Ala Asp Lys Ile
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Ser Pro Lys Arg Asp Lys Gly Leu Val Glu Lys Leu Thr Ala Tyr Ala
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Met Thr Ile Pro Phe Val Arg Gln Gln Val Tyr Lys Val Glu Glu
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Lys Val Arg Lys Gln Thr Lys Gly Leu Tyr Pro Ala Pro Leu Lys Ile
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Lys Ala Leu Met Gly Leu Tyr His Gly Gln Val Leu Cys Lys Lys Asn

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Gln Gln Gln Val Phe Lys Gly Leu Asn Asp Lys Val Lys Lys Ala
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Leu Asp Tyr Gln Gly Phe Glu Lys Ala Asp Met Val Ile Glu Ala Val
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Phe Glu Asp Leu Ser Leu Lys His Arg Val Leu Lys Glu Val Glu Ala
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Val Ile Pro Asp His Cys Ile Phe Ala Ser Asn Thr Ser Ala Leu Pro
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Ile Ser Glu Ile Ala Ala Val Ser Lys Arg Pro Glu Lys Val Ile Gly
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Thr Thr Glu Lys Thr Ser Lys Asp Thr Ser Ala Ser Ala Val Ala Val
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Gly Leu Lys Gln Gly Lys Val Ile Ile Val Val Lys Asp Gly Pro Gly
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Phe Tyr Thr Thr Arg Cys Leu Ala Pro Met Met Ser Glu Val Ile Arg
545 550 555 560

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Ser Phe Gly Phe Pro Val Gly Ala Ala Thr Leu Val Asp Glu Val Gly
580 585 590

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 Glu Arg Phe Gly Gly Asn Pro Glu Leu Leu Thr Gln Met Val Ser
 610 615 620
 Lys Gly Phe Leu Gly Arg Lys Ser Gly Lys Gly Phe Tyr Ile Tyr Gln
 625 630 635 640
 Glu Gly Val Lys Arg Lys Asp Leu Asn Ser Asp Met Asp Ser Ile Leu
 645 650 655
 Ala Ser Leu Lys Leu Pro Pro Lys Ser Glu Val Ser Ser Asp Glu Asp
 660 665 670
 Ile Gln Phe Arg Leu Val Thr Arg Phe Val Asn Glu Ala Val Met Cys
 675 680 685
 Leu Gln Glu Gly Ile Leu Ala Thr Pro Ala Glu Gly Asp Ile Gly Ala
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 Val Phe Gly Leu Gly Phe Pro Pro Cys Leu Gly Gly Pro Phe Arg Phe
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 Val Asp Leu Tyr Gly Ala Gln Lys Ile Val Asp Arg Leu Lys Tyr
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 Ala Leu Leu Cys Leu Ala Val Ala Ala Leu Val Arg Ala Asp Ala Pro
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t ^t g g ^g c c ^a c t ^g c a ^a g g ^c t ctg g ^c c t ^c t g ^a g t ^a t g ^c c a ^a g g ^c c g ^t g g ^g Cys Gly His Cys Lys Ala Leu Ala Pro Glu Tyr Ala Lys Ala Ala Gly 55 60 65	248
a ^a g ctg a ^a g g ^c a g ^a a g ^g t t ^c c g ^a g at ^c a ^g g tt ^g g ^c c a ^a g g ^t g g ^a c g ^c c Lys Leu Lys Ala Glu Gly Ser Glu Ile Arg Leu Ala Lys Val Asp Ala 70 75 80	296
ac ^g g ^a g g ^a g t ^c t g ^a c ctg g ^c c c ^a g c ^a g t ^a c g ^g c g ^t g c ^g c g ^g c t ^a t c ^c c Thr Glu Glu Ser Asp Leu Ala Gln Gln Tyr Gly Val Arg Gly Tyr Pro 85 90 95 100	344
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aca g ^c t g ^g c a ^g a g ^a g g ^c t g ^a t g ^a c at ^c g ^t g a ^a c t ^g g ctg a ^a g a ^a g c ^g c Thr Ala Gly Arg Glu Ala Asp Asp Ile Val Asn Trp Leu Lys Lys Arg 120 125 130	440
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g ^a g t ^c g g ^a c t ^c t g ^c c a ^a g c ^a g t ^t t t ^t g c ^a g g ^c a g ^a g g ^c c at ^c g ^a t Glu Ser Asp Ser Ala Lys Gln Phe Leu Gln Ala Ala Glu Ala Ile Asp 165 170 175 180	584
g ^a c a ^t a c ^c a t ^t t g ^g g at ^c a ^c t t ^c c a ^a c a ^g t g ^a c g ^t g t ^t c t ^c c a ^a a t ^a c Asp Ile Pro Phe Gly Ile Thr Ser Asn Ser Asp Val Phe Ser Lys Tyr 185 190 195	632
c ^a g c ^t c g ^a c a ^a a g ^a t g ^g g g ^t t g ^t c c ^t c t ^t t a ^a g a ^a g t ^t t g ^a t g ^a a g ^g c Gln Leu Asp Lys Asp Gly Val Val Leu Phe Lys Lys Phe Asp Glu Gly 200 205 210	680
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at ^c a ^a a c ^a c a ^a c c ^a g ctg c ^c c c ^t t g ^t c at ^c g ^a g t ^t c acc g ^a g c ^a g a ^c a Ile Lys His Asn Gln Leu Pro Leu Val Ile Glu Phe Thr Glu Gln Thr 230 235 240	776
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 35 40 45

Tyr Ala Pro Trp Cys Gly His Cys Lys Ala Leu Ala Pro Glu Tyr Ala
 50 55 60

Lys Ala Ala Gly Lys Leu Lys Ala Glu Gly Ser Glu Ile Arg Leu Ala
 65 70 75 80

Lys Val Asp Ala Thr Glu Glu Ser Asp Leu Ala Gln Gln Tyr Gly Val
 85 90 95

Arg Gly Tyr Pro Thr Ile Lys Phe Phe Arg Asn Gly Asp Thr Ala Ser
 100 105 110

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Pro Lys Glu Tyr Thr Ala Gly Arg Glu Ala Asp Asp Ile Val Asn Trp
115 120 125

Leu Lys Lys Arg Thr Gly Pro Ala Ala Thr Thr Leu Pro Asp Gly Ala
130 135 140

Ala Ala Glu Ser Leu Val Glu Ser Ser Glu Val Ala Val Ile Gly Phe
145 150 155 160

Phe Lys Asp Val Glu Ser Asp Ser Ala Lys Gln Phe Leu Gln Ala Ala
165 170 175

Glu Ala Ile Asp Asp Ile Pro Phe Gly Ile Thr Ser Asn Ser Asp Val
180 185 190

Phe Ser Lys Tyr Gln Leu Asp Lys Asp Gly Val Val Leu Phe Lys Lys
195 200 205

Phe Asp Glu Gly Arg Asn Asn Phe Glu Gly Glu Val Thr Lys Glu Asn
210 215 220

Leu Leu Asp Phe Ile Lys His Asn Gln Leu Pro Leu Val Ile Glu Phe
225 230 235 240

Thr Glu Gln Thr Ala Pro Lys Ile Phe Gly Gly Glu Ile Lys Thr His
245 250 255

Ile Leu Leu Phe Leu Pro Lys Ser Val Ser Asp Tyr Asp Gly Lys Leu
260 265 270

Ser Asn Phe Lys Thr Ala Ala Glu Ser Phe Lys Gly Lys Ile Leu Phe
275 280 285

Ile Phe Ile Asp Ser Asp His Thr Asp Asn Gln Arg Ile Leu Glu Phe
290 295 300

Phe Gly Leu Lys Lys Glu Glu Cys Pro Ala Val Arg Leu Ile Thr Leu
305 310 315 320

Glu Glu Glu Met Thr Lys Tyr Lys Pro Glu Ser Glu Glu Leu Thr Ala
325 330 335

Glu Arg Ile Thr Glu Phe Cys His Arg Phe Leu Glu Gly Lys Ile Lys
340 345 350

Pro His Leu Met Ser Gln Glu Leu Pro Glu Asp Trp Asp Lys Gln Pro
355 360 365

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Val Lys Val Leu Val Gly Lys Asn Phe Glu Asp Val Ala Phe Asp Glu
370 375 380

Lys Lys Asn Val Phe Val Glu Phe Tyr Ala Pro Trp Cys Gly His Cys
385 390 395 400

Lys Gln Leu Ala Pro Ile Trp Asp Lys Leu Gly Glu Thr Tyr Lys Asp
405 410 415

His Glu Asn Ile Val Ile Ala Lys Met Asp Ser Thr Ala Asn Glu Val
420 425 430

Glu Ala Val Lys Val His Ser Phe Pro Thr Leu Lys Phe Phe Pro Ala
435 440 445

Ser Ala Asp Arg Thr Val Ile Asp Tyr Asn Gly Glu Arg Thr Leu Asp
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Gly Phe Lys Lys Phe Leu Glu Ser Gly Gly Gln Asp Gly Ala Gly Asp
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atg gga cta gct ggc gtg tgc gcc ctg aga cgc tca gcg ggc tat ata 167
Met Gly Leu Ala Gly Val Cys Ala Leu Arg Arg Ser Ala Gly Tyr Ile
1 5 10 15

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Leu Val Gly Ala Gly Gly Gln Ser Ala Ala Ala Ala Arg Arg
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tgc agt gaa gga gag tgg gcg tct ggc ggg gtc cgc agt ttc agc aga 263
Cys Ser Glu Gly Glu Trp Ala Ser Gly Gly Val Arg Ser Phe Ser Arg

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311

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359

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407

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455

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 Thr Pro Gly Cys Ser Lys Thr His Leu Pro Gly Phe Val Glu Gln Ala
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gag gct ctg aag gcc aag gga gtc cag gtg gtg gcc tgt ctg agt gtt
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503

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 Gly Lys Val Arg Leu Leu Ala Asp Pro Thr Gly Ala Phe Gly Lys Glu
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599

aca gac tta tta cta gat gat tcg ctg gtg tcc atc ttt ggg aat cga
 Thr Asp Leu Leu Leu Asp Asp Ser Leu Val Ser Ile Phe Gly Asn Arg
 165 170 175

647

cgt ctc aag agg ttc tcc atg gtg gta cag gat ggc ata gtg aag gcc
 Arg Leu Lys Arg Phe Ser Met Val Val Gln Asp Gly Ile Val Lys Ala
 180 185 190

695

ctg aat gtg gaa cca gat ggc aca ggc ctc acc tgc agc ctg gca ccc
 Leu Asn Val Glu Pro Asp Gly Thr Gly Leu Thr Cys Ser Leu Ala Pro
 195 200 205

743

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 Asn Ile Ile Ser Gln Leu
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794

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20 25 30

Cys Ser Glu Gly Glu Trp Ala Ser Gly Gly Val Arg Ser Phe Ser Arg
35 40 45

Ala Ala Ala Ala Met Ala Pro Ile Lys Val Gly Asp Ala Ile Pro Ala
50 55 60

Val Glu Val Phe Glu Gly Glu Pro Gly Asn Lys Val Asn Leu Ala Glu
65 70 75 80

Leu Phe Lys Gly Lys Lys Gly Val Leu Phe Gly Val Pro Gly Ala Phe
85 90 95

Thr Pro Gly Cys Ser Lys Thr His Leu Pro Gly Phe Val Glu Gln Ala
100 105 110

Glu Ala Leu Lys Ala Lys Gly Val Gln Val Val Ala Cys Leu Ser Val
115 120 125

Asn Asp Ala Phe Val Thr Gly Glu Trp Gly Arg Ala His Lys Ala Glu
130 135 140

Gly Lys Val Arg Leu Leu Ala Asp Pro Thr Gly Ala Phe Gly Lys Glu
145 150 155 160

Thr Asp Leu Leu Leu Asp Asp Ser Leu Val Ser Ile Phe Gly Asn Arg
165 170 175

Arg Leu Lys Arg Phe Ser Met Val Val Gln Asp Gly Ile Val Lys Ala
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Asn Ile Ile Ser Gln Leu
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15	20	25	30
gcg gga gcg gca gcg gaa ggg gga ggc tgg gcg gcg gcg ttg gcg	Ala Gly Ala Ala Ala Glu Gly Gly Trp Ala Ala Ala Ala Leu Ala	144	
35	40	45	
ctt ctg acg ggg ggc ggg gaa atg ctg ctg aac gtg gcg ctg gtg gct	Leu Leu Thr Gly Gly Glu Met Leu Leu Asn Val Ala Leu Val Ala	192	
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ggt ctg ggg gcc ggg gcc ggg gcg ggc gag gag agc ccc gcc acc tct	Gly Leu Gly Ala Gly Ala Gly Glu Glu Ser Pro Ala Thr Ser	288	
80	85	90	
ctg cct cgc atg aag aag cgg gac ttc agc ttg gag cag ctg cgc cag	Leu Pro Arg Met Lys Lys Arg Asp Phe Ser Leu Glu Gln Leu Arg Gln	336	
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115	120	125	
gtc ttc gac gtg acc aaa ggc agc aag ttc tac ggc ccg gcg ggt cca	Val Phe Asp Val Thr Lys Gly Ser Lys Phe Tyr Gly Pro Ala Gly Pro	432	
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160	165	170	
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175	180	185	190
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210	215	220	
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aaagaaggag acagggattt tttaaagag caagaaagtc acaatattac ttcttcctt	968
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Ala Ala Ala Glu Gly Gly Trp Ala Ala Ala Leu Ala Leu Leu
35 40 45

Thr Gly Gly Gly Glu Met Leu Leu Asn Val Ala Leu Val Ala Leu Val
50 55 60

Leu Leu Gly Ala Tyr Arg Leu Trp Val Arg Trp Gly Arg Arg Gly Leu
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65

70

75

80

Gly Ala Gly Ala Gly Ala Gly Glu Glu Ser Pro Ala Thr Ser Leu Pro
85 90 95

Arg Met Lys Lys Arg Asp Phe Ser Leu Glu Gln Leu Arg Gln Tyr Asp
100 105 110

Gly Ser Arg Asn Pro Arg Ile Leu Leu Ala Val Asn Gly Lys Val Phe
115 120 125

Asp Val Thr Lys Gly Ser Lys Phe Tyr Gly Pro Ala Gly Pro Tyr Gly
130 135 140

Ile Phe Ala Gly Arg Asp Ala Ser Arg Gly Leu Ala Thr Phe Cys Leu
145 150 155 160

Asp Lys Asp Ala Leu Arg Asp Glu Tyr Asp Asp Leu Ser Asp Leu Asn
165 170 175

Ala Val Gln Met Glu Ser Val Arg Glu Trp Glu Met Gln Phe Lys Glu
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Met
1

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Val Gln Lys Lys Pro Ala Glu Leu Gln Gly Phe His Arg Ser Phe Lys
5 10 15

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gga gac tct gac ttt ggc ctg cag tgc tca gcc cgc cct gac atg ccc Gly Asp Ser Asp Phe Gly Leu Gln Cys Ser Ala Arg Pro Asp Met Pro 35 40 45	382
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aag aag cgc ggc cg gcc acc gac agc ttc tcg ggc agg ttt gaa gac Lys Lys Arg Gly Arg Ala Thr Asp Ser Phe Ser Gly Arg Phe Glu Asp 70 75 80	478
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atc att gag aag cag cca ggc cac att cgg agc agg gtt ttc agg gag Ile Ile Glu Lys Gln Pro Gly His Ile Arg Ser Arg Val Phe Arg Glu 115 120 125	622
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att gag ttc ttc gag gag gag gac cgc ttc tac ctg gtg ttt gag aag Ile Glu Phe Phe Glu Glu Glu Asp Arg Phe Tyr Leu Val Phe Glu Lys 150 155 160	718
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260

265

270

1102

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1150

agc ggc tac ccg ccc ttc gtg ggc cgc tgt ggc agc gac tgc ggc tgg
 Ser Gly Tyr Pro Pro Phe Val Gly Arg Cys Gly Ser Asp Cys Gly Trp
 290 295 300 305

1198

gac cgc ggc gag gcc tgc cct gcc tgc cag aac atg ctg ttt gag agc
 Asp Arg Gly Glu Ala Cys Pro Ala Cys Gln Asn Met Leu Phe Glu Ser
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1246

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1294

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 Lys Gln Arg Leu Ser Ala Ala Gln Val Leu Gln His Pro Trp Val Gln
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1390

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 Asn Ser Cys Ala Lys Asp Leu Thr Ser Phe Ala Ala Glu Ala Ile Ala
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1486

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1534

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ctg cag ctg tct cca ccc tcc cag tcc aag ctg gcg cag cgg cgg caa
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1630

agg gcc agt ctg tcc tcg gcc cca gtg gtc ctg gtg gga gac cac gcc
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His Gly Asp Ser Asp Phe Gly Leu Gln Cys Ser Ala Arg Pro Asp Met
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Pro Ala Ser Gln Pro Ile Asp Ile Pro Asp Ala Lys Lys Arg Gly Lys
50 55 60

Lys Lys Lys Arg Gly Arg Ala Thr Asp Ser Phe Ser Gly Arg Phe Glu
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Asp Val Tyr Gln Leu Gln Glu Asp Val Leu Gly Glu Gly Ala His Ala
85 90 95

Arg Val Gln Thr Cys Ile Asn Leu Ile Thr Ser Gln Glu Tyr Ala Val
100 105 110

Lys Ile Ile Glu Lys Gln Pro Gly His Ile Arg Ser Arg Val Phe Arg
115 120 125

Glu Val Glu Met Leu Tyr Gln Cys Gln Gly His Arg Asn Val Leu Glu
130 135 140

Leu Ile Glu Phe Phe Glu Glu Glu Asp Arg Phe Tyr Leu Val Phe Glu
145 150 155 160

Lys Met Arg Gly Gly Ser Ile Leu Ser His Ile His Lys Arg Arg His
165 170 175

Phe Asn Glu Leu Glu Ala Ser Val Val Val Gln Asp Val Ala Ser Ala
180 185 190

Leu Asp Phe Leu His Asn Lys Gly Ile Ala His Arg Asp Leu Lys Pro
195 200 205

Glu Asn Ile Leu Cys Glu His Pro Asn Gln Val Ser Pro Val Lys Ile
210 215 220

Cys Asp Phe Asp Leu Gly Ser Gly Ile Lys Leu Asn Gly Asp Cys Ser
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225

230

235

240

Pro Ile Ser Thr Pro Glu Leu Leu Thr Pro Cys Gly Ser Ala Glu Tyr
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Met Ala Pro Glu Val Val Glu Ala Phe Ser Glu Glu Ala Ser Ile Tyr
260 265 270

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Leu Ser Gly Tyr Pro Pro Phe Val Gly Arg Cys Gly Ser Asp Cys Gly
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Trp Asp Arg Gly Glu Ala Cys Pro Ala Cys Gln Asn Met Leu Phe Glu
305 310 315 320

Ser Ile Gln Glu Gly Lys Tyr Glu Phe Pro Asp Lys Asp Trp Ala His
325 330 335

Ile Ser Cys Ala Ala Lys Asp Leu Ile Ser Lys Leu Leu Val Arg Asp
340 345 350

Ala Lys Gln Arg Leu Ser Ala Ala Gln Val Leu Gln His Pro Trp Val
355 360 365

Gln Gly Cys Ala Pro Glu Asn Thr Leu Pro Thr Pro Met Val Leu Gln
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20 25 30	
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35 40 45	
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50 55 60	
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165 170 175	
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Gln	Asp	Pro	Ala	Pro	Leu	Leu	Arg	Gly	Phe	Arg	Lys	Pro	Ala	Thr	Gly
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Gln	Met	Lys	Arg	Asn	Arg	Gly	Glu	Glu	Ile	Asp	Phe	Glu	Thr	Pro	Gly
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Phe	His	Ala	Leu	Pro	Ser	His	Phe	Gln	Gln	Gln	Leu	Leu	Phe	Leu	Leu
275				280					285						
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Pro	Glu	Val	Asp	Arg	Gln	Val	Gly	Thr	Asp	Gly	Leu	Leu	Arg	Leu	Ser
290				295					300						
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ctc acg gag gac agc agt gag gct gac act aga gaa gct gca gtg Leu Thr Glu Asp Ser Ser Glu Ala Asp Thr Arg Glu Ala Ala Val 1010 1015 1020				3488
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caa tct gcc cca ctg tcc aag gtg aat ggt gac atg cgt ctg gtt Gln Ser Ala Pro Leu Ser Lys Val Asn Gly Asp Met Arg Leu Val 1040 1045 1050				3578
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ggt agc ttg ccc cta gag aag gtt ctt cca cca gcc cac gat gac Gly Ser Leu Pro Leu Glu Lys Val Leu Pro Pro Ala His Asp Asp 1115 1120 1125				3803
agc atg tca gaa tcc cca caa gta cca ctt aca aaa gac cag agc Ser Met Ser Glu Ser Pro Gln Val Pro Leu Thr Lys 1140 Asp Gln Ser 1130 1135				3848
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agt ggc atg gtt gat gga agc agc ccc agt tct tta agg gct ttg Ser Gly Met Val Asp Gly Ser Ser Pro Ser Ser Leu Arg Ala Leu 1160 1165 1170				3938
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gcc agg att gag gcc acc cag gct cct gga gca ccc caa aag aat				4028

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Ala	Arg	Ile	Glu	Ala	Thr	Gln	Ala	Pro	Gly	Ala	Pro	Gln	Lys	Asn		
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Cys	Lys	Ala	Val	Pro	Ser	Phe	Asp	Ser	Leu	His	Pro	Val	Thr	Asn		
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ccc	att	aca	tcc	tct	agg	aaa	ctg	gaa	gaa	atg	gat	tcc	aaa	gag	4118	
Pro	Ile	Thr	Ser	Ser	Arg	Lys	Leu	Glu	Glu	Met	Asp	Ser	Lys	Glu		
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cag	ttc	tct	tcc	ttt	agt	tgt	gaa	gat	cag	aag	gaa	gtc	cgt	gct	4163	
Gln	Phe	Ser	Ser	Phe	Ser	Cys	Glu	Asp	Gln	Lys	Glu	Val	Arg	Ala		
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gga	gat	ctt	act	acc	tcg	aga	aca	cct	cgt	ttc	tca	tct	cca	aat	4253	
Gly	Asp	Leu	Thr	Thr	Ser	Arg	Thr	Pro	Arg	Phe	Ser	Ser	Pro	Asn		
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gtg	atc	tcc	ttt	ggt	cca	gag	cag	aca	ggt	cgg	gcc	ctg	ggt	gat	4298	
Val	Ile	Ser	Phe	Gly	Pro	Glu	Gln	Thr	Gly	Arg	Ala	Leu	Gly	Asp		
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Gln	Ser	Asn	Val	Thr	Gly	Gln	Gly	Lys	Lys	Leu	Phe	Gly	Ser	Gly		
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Asn	Val	Ala	Ala	Thr	Leu	Gln	Arg	Pro	Arg	Pro	Ala	Asp	Pro	Met		
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gaa	gac	tgg	gct	cca	aag	cca	cat	gcc	ttt	gtt	ggc	agc	gtc	aag	4523	
Glu	Asp	Trp	Ala	Pro	Lys	Pro	His	Ala	Phe	Val	Gly	Ser	Val	Lys		
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Pro	Arg	Glu	Pro	Gly	Lys	Gly	Leu	Ser	Glu	Pro	Leu	Glu	Pro	Ser		
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1460 1465 1470	
ctg agc cac aaa gca aac ttt ggt gcg agc cac agt gca tca ctt	4883
Leu Ser His Lys Ala Asn Phe Gly Ala Ser His Ser Ala Ser Leu	
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tcc ttg caa atg ttc act gac agc agc acg gtg gaa agc atc tcg	4928
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1490 1495 1500	
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Leu Gln Cys Ala Cys Ser Leu Lys Ala Met Ile Met Cys Gln Gly	
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Cys Gly Ala Phe Cys His Asp Asp Cys Ile Gly Pro Ser Lys Leu	
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<400> 48

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Ala Arg Leu Val Leu Glu Asn Tyr Ser Asp Ala Pro Met Thr Pro Lys
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Gln Ile Leu Gln Val Ile Glu Ala Glu Gly Leu Lys Glu Met Arg Ser
35 40 45

Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu His Ser Asn Ser
50 55 60

Arg Gly Gly Glu Gly Leu Phe Tyr Lys Leu Pro Gly Arg Ile Ser Leu
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Phe Thr Leu Lys Lys Asp Ala Leu Gln Trp Ser Arg His Pro Ala Thr
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Val Glu Gly Glu Glu Pro Glu Asp Thr Ala Asp Val Glu Ser Cys Gly
100 105 110

Ser Asn Glu Ala Ser Thr Val Ser Gly Glu Asn Asp Val Ser Leu Asp
115 120 125

Glu Thr Ser Ser Asn Ala Ser Cys Ser Thr Glu Ser Gln Ser Arg Pro
130 135 140

Leu Ser Asn Pro Arg Asp Ser Tyr Arg Ala Ser Ser Gln Ala Asn Lys
145 150 155 160

Gln Lys Lys Lys Thr Gly Val Met Leu Pro Arg Val Val Leu Thr Pro
165 170 175

Leu Lys Val Asn Gly Ala His Val Glu Ser Ala Ser Gly Phe Ser Gly
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Cys His Ala Asp Gly Glu Ser Gly Ser Pro Ser Ser Ser Ser Gly
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Gln Asp Pro Ala Pro Leu Leu Arg Gly Phe Arg Lys Pro Ala Thr Gly
225 230 235 240

Gln Met Lys Arg Asn Arg Gly Glu Glu Ile Asp Phe Glu Thr Pro Gly
245 250 255

Ser Ile Leu Val Asn Thr Asn Leu Arg Ala Leu Ile Asn Ser Arg Thr
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Phe His Ala Leu Pro Ser His Phe Gln Gln Gln Leu Leu Phe Leu Leu
275 280 285

Pro Glu Val Asp Arg Gln Val Gly Thr Asp Gly Leu Leu Arg Leu Ser
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Ser Ser Ala Leu Asn Asn Glu Phe Phe Thr His Ala Ala Gln Ser Trp
305 310 315 320

Arg Glu Arg Leu Ala Asp Gly Glu Phe Thr His Glu Met Gln Val Arg
325 330 335

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Ile Arg Gln Glu Met Glu Lys Glu Lys Lys Val Glu Gln Trp Lys Glu
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Lys Phe Phe Glu Asp Tyr Tyr Gly Gln Lys Leu Gly Leu Thr Lys Glu
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Glu Ser Leu Gln Gln Asn Val Gly Gln Glu Glu Ala Glu Ile Lys Ser
370 375 380

Gly Leu Cys Val Pro Gly Glu Ser Val Arg Ile Gln Arg Gly Pro Ala
385 390 395 400

Thr Arg Gln Arg Asp Gly His Phe Lys Lys Arg Ser Arg Pro Asp Leu
405 410 415

Arg Thr Arg Ala Arg Arg Asn Leu Tyr Lys Lys Gln Glu Ser Glu Gln
420 425 430

Ala Gly Val Ala Lys Asp Ala Lys Ser Val Ala Ser Asp Val Pro Leu
435 440 445

Tyr Lys Asp Gly Glu Ala Lys Thr Asp Pro Ala Gly Leu Ser Ser Pro
450 455 460

His Leu Pro Gly Thr Ser Ser Ala Ala Pro Asp Leu Glu Gly Pro Glu
465 470 475 480

Phe Pro Val Glu Ser Val Ala Ser Arg Ile Gln Ala Glu Pro Asp Asn
485 490 495

Leu Ala Arg Ala Ser Ala Ser Pro Asp Arg Ile Pro Ser Leu Pro Gln
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Glu Thr Val Asp Gln Glu Pro Lys Asp Gln Lys Arg Lys Ser Phe Glu
515 520 525

Gln Ala Ala Ser Ala Ser Phe Pro Glu Lys Lys Pro Arg Leu Glu Asp
530 535 540

Arg Gln Ser Phe Arg Asn Thr Ile Glu Ser Val His Thr Glu Lys Pro
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Gln Pro Thr Lys Glu Glu Pro Lys Val Pro Pro Ile Arg Ile Gln Leu
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Ser Arg Ile Lys Pro Pro Trp Val Val Lys Gly Gln Pro Thr Tyr Gln
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Thr Gly Ala Arg Thr Leu Ala Asp Ile Lys Ala Arg Ala Leu Gln Val
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Arg Gly Ala Arg Gly His His Cys His Arg Glu Ala Ala Thr Thr Ala
625 630 635 640

Ile Gly Gly Gly Pro Gly Gly Gly Gly Ala Thr Asp
645 650 655

Glu Gly Gly Gly Arg Gly Ser Ser Ser Gly Asp Gly Gly Glu Ala Cys
660 665 670

Gly His Pro Glu Pro Arg Gly Gly Pro Ser Thr Pro Gly Lys Cys Thr
675 680 685

Ser Asp Leu Gln Arg Thr Gln Leu Leu Pro Pro Tyr Pro Leu Asn Gly
690 695 700

Glu His Thr Gln Ala Gly Thr Ala Met Ser Arg Ala Arg Arg Glu Asp
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Leu Pro Ser Leu Arg Lys Glu Glu Ser Cys Leu Leu Gln Arg Ala Thr
725 730 735

Val Gly Leu Thr Asp Gly Leu Gly Asp Ala Ser Gln Leu Pro Val Ala
740 745 750

Pro Thr Gly Asp Gln Pro Cys Gln Ala Leu Pro Leu Leu Ser Ser Gln
755 760 765

Thr Ser Val Ala Glu Arg Leu Val Glu Gln Pro Gln Leu His Pro Asp
770 775 780

Val Arg Thr Glu Cys Glu Ser Gly Thr Thr Ser Trp Glu Ser Asp Asp
785 790 795 800

Glu Glu Gln Gly Pro Thr Val Pro Ala Asp Asn Gly Pro Ile Pro Ser
805 810 815

Leu Val Gly Asp Asp Thr Leu Glu Lys Gly Thr Gly Gln Ala Leu Asp
820 825 830

Ser His Pro Thr Met Lys Asp Pro Val Asn Val Thr Pro Ser Ser Thr

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Pro Glu Ser Ser Pro Thr Asp Cys Leu Gln Asn Arg Ala Phe Asp Asp
850 855 860

Glu Leu Gly Leu Gly Gly Ser Cys Pro Pro Met Arg Glu Ser Asp Thr
865 870 875 880

Arg Gln Glu Asn Leu Lys Thr Lys Ala Leu Val Ser Asn Ser Ser Leu
885 890 895

His Trp Ile Pro Ile Pro Ser Asn Asp Glu Val Val Lys Gln Pro Lys
900 905 910

Pro Glu Ser Arg Glu His Ile Pro Ser Val Glu Pro Gln Val Gly Glu
915 920 925

Glu Trp Glu Lys Ala Ala Pro Thr Pro Pro Ala Leu Pro Gly Asp Leu
930 935 940

Thr Ala Glu Glu Gly Leu Asp Pro Leu Asp Ser Leu Thr Ser Leu Trp
945 950 955 960

Thr Val Pro Ser Arg Gly Gly Ser Asp Ser Asn Gly Ser Tyr Cys Gln
965 970 975

Gln Val Asp Ile Glu Lys Leu Lys Ile Asn Gly Asp Ser Glu Ala Leu
980 985 990

Ser Pro His Gly Glu Ser Thr Asp Thr Ala Ser Asp Phe Glu Gly His
995 1000 1005

Leu Thr Glu Asp Ser Ser Glu Ala Asp Thr Arg Glu Ala Ala Val
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Thr Lys Gly Ser Ser Val Asp Lys Asp Glu Lys Pro Asn Trp Asn
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Gln Ser Ala Pro Leu Ser Lys Val Asn Gly Asp Met Arg Leu Val
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Thr Arg Thr Asp Gly Met Val Ala Pro Gln Ser Trp Val Ser Arg
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Val Cys Ala Val Arg Gln Lys Ile Pro Asp Ser Leu Leu Leu Ala
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Gly Ser Leu Pro Leu Glu Lys Val Leu Pro Pro Ala His Asp Asp
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Ser Met Ser Glu Ser Pro Gln Val Pro Leu Thr Lys Asp Gln Ser
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His Gly Ser Leu Arg Met Gly Ser Leu His Gly Leu Gly Lys Asn
1145 1150 1155

Ser Gly Met Val Asp Gly Ser Ser Pro Ser Ser Leu Arg Ala Leu
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Lys Glu Pro Leu Leu Pro Asp Ser Cys Glu Thr Gly Thr Gly Leu
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Ala Arg Ile Glu Ala Thr Gln Ala Pro Gly Ala Pro Gln Lys Asn
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Cys Lys Ala Val Pro Ser Phe Asp Ser Leu His Pro Val Thr Asn
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Pro Ile Thr Ser Ser Arg Lys Leu Glu Glu Met Asp Ser Lys Glu
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Gln Phe Ser Ser Phe Ser Cys Glu Asp Gln Lys Glu Val Arg Ala
1235 1240 1245

Met Ser Gln Asp Ser Asn Ser Asn Ala Ala Pro Gly Lys Ser Pro
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Gly Asp Leu Thr Thr Ser Arg Thr Pro Arg Phe Ser Ser Pro Asn
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Val Ile Ser Phe Gly Pro Glu Gln Thr Gly Arg Ala Leu Gly Asp
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Asn Val Ala Ala Thr Leu Gln Arg Pro Arg Pro Ala Asp Pro Met
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Gly Pro Ser Thr Asn Ser Met Ser Gly Gly Val Gln Thr Pro Arg
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Glu Asp Trp Ala Pro Lys Pro His Ala Phe Val Gly Ser Val Lys
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Asn Arg Lys Ala Thr Gly His Ser Pro Leu Glu Leu Val Gly His
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Leu Glu Gly Met Pro Phe Val Met Asp Leu Pro Phe Trp Lys Leu
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Pro Arg Glu Pro Gly Lys Gly Leu Ser Glu Pro Leu Glu Pro Ser
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Ser Leu Pro Ser Gln Leu Ser Ile Lys Gln Ala Phe Tyr Gly Lys
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Leu Ser Lys Leu Gln Leu Ser Ser Thr Ser Phe Asn Tyr Ser Ser
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Ser Ser Pro Thr Phe Pro Lys Gly Leu Ala Gly Ser Val Val Gln
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Leu Ser His Lys Ala Asn Phe Gly Ala Ser His Ser Ala Ser Leu
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Ser Leu Gln Met Phe Thr Asp Ser Ser Thr Val Glu Ser Ile Ser
1490 1495 1500

Leu Gln Cys Ala Cys Ser Leu Lys Ala Met Ile Met Cys Gln Gly
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Pro Val Ser Asn Met Asn Ser Gly Leu Gly Ser Met Asn Ser Met Asn		
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Ala Ser Phe Asn Met Ser Tyr Ala Asn Pro Gly Leu Gly Ala Gly Leu		
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Ser Pro Gly Ala Val Ala Gly Met Pro Gly Gly Ser Ala Gly Ala Met		
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Asn Ser Met Thr Ala Ala Gly Val Thr Ala Met Gly Thr Ala Leu Ser		
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Pro Ser Gly Met Gly Ala Met Gly Ala Gln Gln Ala Ala Ser Met Asn		
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Gly Leu Gly Pro Tyr Ala Ala Met Asn Pro Cys Met Ser Pro Met		
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Ala Tyr Ala Pro Ser Asn Leu Gly Arg Ser Arg Ala Gly Gly Gly		
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gac gcc aag acg ttc aag cgc agc tac ccg cac gcc aag ccg ccc tac		831
Asp Ala Lys Thr Phe Lys Arg Ser Tyr Pro His Ala Lys Pro Pro Tyr		
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tat tac cgg cag aac cag cag cgc tgg cag aac tcc atc cgc cac tcg Tyr Tyr Arg Gln Asn Gln Gln Arg Trp Gln Asn Ser Ile Arg His Ser 210 215 220	975
ctg tcc ttc aat gac tgc ttc gtc aag gtg gca cgc tcc ccg gac aag Leu Ser Phe Asn Asp Cys Phe Val Lys Val Ala Arg Ser Pro Asp Lys 225 230 235	1023
ccg ggc aag ggc tcc tac tgg acg ctg cac ccg gac tcc ggc aac atg Pro Gly Lys Gly Ser Tyr Trp Thr Leu His Pro Asp Ser Gly Asn Met 240 245 250	1071
ttc gag aac ggc tgc tac ttg cgc cgc cag aag cgc ttc aag tgc gag Phe Glu Asn Gly Cys Tyr Leu Arg Arg Gln Lys Arg Phe Lys Cys Glu 255 260 265	1119
aag cag ccg ggg gcc ggc ggg ggc ggg agc gga agc ggg ggc agc Lys Gln Pro Gly Ala Gly Gly Gly Ser Gly Ser Gly Gly Ser 270 275 280 285	1167
ggc gcc aag ggc ggc cct gag agc cgc aag gac ccc tct ggc gcc tct Gly Ala Lys Gly Pro Glu Ser Arg Lys Asp Pro Ser Gly Ala Ser 290 295 300	1215
aac ccc agc gcc gac tcg ccc ctc cat cgg ggt gtg cac ggg aag acc Asn Pro Ser Ala Asp Ser Pro Leu His Arg Gly Val His Gly Lys Thr 305 310 315	1263
ggc cag cta gag ggc gcg ccg gcc ccc ggg ccc gcc gcc agc ccc cag Gly Gln Leu Glu Gly Ala Pro Ala Pro Gly Pro Ala Ala Ser Pro Gln 320 325 330	1311
act ctg gac cac agt ggg gcg acg gcg aca ggg ggc gcc tcg gag ttg Thr Leu Asp His Ser Gly Ala Thr Ala Thr Gly Gly Ala Ser Glu Leu 335 340 345	1359
aag act cca gcc tcc tca act gcg ccc ccc ata agc tcc ggg ccc ggg Lys Thr Pro Ala Ser Ser Thr Ala Pro Pro Ile Ser Ser Gly Pro Gly 350 355 360 365	1407
gcg ctg gcc tct gtg ccc gcc tct cac ccg gca cac ggc ttg gca ccc Ala Leu Ala Ser Val Pro Ala Ser His Pro Ala His Gly Leu Ala Pro 370 375 380	1455
cac gag tcc cag ctg cac ctg aaa ggg gac ccc cac tac tcc ttc aac His Glu Ser Gln Leu His Leu Lys Gly Asp Pro His Tyr Ser Phe Asn 385 390 395	1503
cac ccg ttc tcc atc aac aac ctc atg tcc tcc tcg gag cag cag cat His Pro Phe Ser Ile Asn Asn Leu Met Ser Ser Ser Glu Gln Gln His 400 405 410	1551
aag ctg gac ttc aag gca tac gaa cag gca ctg caa tac tcg cct tac Lys Leu Asp Phe Lys Ala Tyr Glu Gln Ala Leu Gln Tyr Ser Pro Tyr 415 420 425	1599

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acc agg agc ccc atc gag ccc tca gcc ctg gag ccg gcg tac tac caa Thr Arg Ser Pro Ile Glu Pro Ser Ala Leu Glu Pro Ala Tyr Tyr Gln 450 455 460	1695
ggt gtg tat tcc aga ccc gtc cta aac act tcc tag ctcccggac Gly Val Tyr Ser Arg Pro Val Leu Asn Thr Ser 465 470	1741
tgggggttt gtctggata gccatgctgg tagcaagaga gaaaaaatca acagcaaaca aaaccacaca aaccaaaccg tcaacagcat aataaaaatcc caacaactat ttttatttca ttttcatgc acaaccttc ccccagtgc aaagactttt actttattat tgtattcaaa attcattgtg tatattacta caaagacaac cccaaaccaa ttttttcct gcgaagttt atgatccaca agtgtatata tgaaattctc ctcccttccctt gccccctct ctttcttccc tctttccctt ccagacattt tagttgtgg agggtttattt aaaaaaacaa aaaaggaaga tggtaagtt tgtaaaatat ttgtttgtgc tttttccccc tccttacctg acccccctacg agtttacagg tctgtggcaa tactcttaac cataagaatt gaaatggtga agaaacaagt atacactaga ggctcttaaa agtattgaaa gacaatactg ctgttatata gcaagacata aacagattat aaacatcaga gccatttgct tctcagtttta catttctgat acatgcagat agcagatgtc tttaaatgaa atacatgtat attgtgtatg gacttaatta tgcacatgct cagatgtgtt gacatcctcc gtatatttac ataacatata gaggtatag ataggtata tacatgatac attctcaaga gttgcttgac cgaaagtttac aaggacccca acccccttgc cctctctacc cacagatggc cctggaaatc aattcctcag gaattgccct caagaactct gcttcttgct ttgcagatgtt ccatggtcat gtcattctga ggtcacataa cacataaaat tagttctat gagtgtatac catttaaaga attttttttt cagtaaaagg gaatattaca atgttggagg agagataagt tatagggagc tggatttcaa aacgtggtcc aagattcaa aatcctattt atagtggcca tttaatcat tgccatcgat tgcttgcatttcc atccagtgat atgcactttc cacagtttga catgggttta gtatagccag acgggtttca ttattatttc tctttgcattt ctcaatgttta atttatttgca tggtttatttcc tttttcttta cagctgaaat tgctttaat gatggttaaa attacaaattt aaattgttaa tttttatcaa tgtgattgtt attaaaaata ttgttatttta aataacaaaa ataataccag atttaagcc gtggaaaatg ttcttgatca ttgcagtttta aggactttaa ataaatcaa tgttaacaaa aaaaaaaaaaa aaa	1801 1861 1921 1981 2041 2101 2161 2221 2281 2341 2401 2461 2521 2581 2641 2701 2761 2821 2881 2941 3001 3061 3121 3124

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35 40 45

Thr Met Asn Thr Met Thr Thr Ser Gly Asn Met Thr Pro Ala Ser Phe
50 55 60

Asn Met Ser Tyr Ala Asn Pro Gly Leu Gly Ala Gly Leu Ser Pro Gly
65 70 75 80

Ala Val Ala Gly Met Pro Gly Gly Ser Ala Gly Ala Met Asn Ser Met
85 90 95

Thr Ala Ala Gly Val Thr Ala Met Gly Thr Ala Leu Ser Pro Ser Gly
100 105 110

Met Gly Ala Met Gly Ala Gln Gln Ala Ala Ser Met Asn Gly Leu Gly
115 120 125

Pro Tyr Ala Ala Ala Met Asn Pro Cys Met Ser Pro Met Ala Tyr Ala
130 135 140

Pro Ser Asn Leu Gly Arg Ser Arg Ala Gly Gly Gly Asp Ala Lys
145 150 155 160

Thr Phe Lys Arg Ser Tyr Pro His Ala Lys Pro Pro Tyr Ser Tyr Ile
165 170 175

Ser Leu Ile Thr Met Ala Ile Gln Gln Ala Pro Ser Lys Met Leu Thr
180 185 190

Leu Ser Glu Ile Tyr Gln Trp Ile Met Asp Leu Phe Pro Tyr Tyr Arg
195 200 205

Gln Asn Gln Gln Arg Trp Gln Asn Ser Ile Arg His Ser Leu Ser Phe
210 215 220

Asn Asp Cys Phe Val Lys Val Ala Arg Ser Pro Asp Lys Pro Gly Lys
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225

230

235

240

Gly Ser Tyr Trp Thr Leu His Pro Asp Ser Gly Asn Met Phe Glu Asn
245 250 255

Gly Cys Tyr Leu Arg Arg Gln Lys Arg Phe Lys Cys Glu Lys Gln Pro
260 265 270

Gly Ala Gly Gly Gly Ser Gly Ser Gly Ser Gly Ala Lys
275 280 285

Gly Gly Pro Glu Ser Arg Lys Asp Pro Ser Gly Ala Ser Asn Pro Ser
290 295 300

Ala Asp Ser Pro Leu His Arg Gly Val His Gly Lys Thr Gly Gln Leu
305 310 315 320

Glu Gly Ala Pro Ala Pro Gly Pro Ala Ala Ser Pro Gln Thr Leu Asp
325 330 335

His Ser Gly Ala Thr Ala Thr Gly Gly Ala Ser Glu Leu Lys Thr Pro
340 345 350

Ala Ser Ser Thr Ala Pro Pro Ile Ser Ser Gly Pro Gly Ala Leu Ala
355 360 365

Ser Val Pro Ala Ser His Pro Ala His Gly Leu Ala Pro His Glu Ser
370 375 380

Gln Leu His Leu Lys Gly Asp Pro His Tyr Ser Phe Asn His Pro Phe
385 390 395 400

Ser Ile Asn Asn Leu Met Ser Ser Ser Glu Gln Gln His Lys Leu Asp
405 410 415

Phe Lys Ala Tyr Glu Gln Ala Leu Gln Tyr Ser Pro Tyr Gly Ser Thr
420 425 430

Leu Pro Ala Ser Leu Pro Leu Gly Ser Ala Ser Val Thr Thr Arg Ser
435 440 445

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agcaccggcg ccaagaagac agacattccc tggcggctga agcagatgct ggatatcctg	240	
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gtacagagca ggcgcctgctg ccctgcgatc gtccggcact ttgccagttg taccggtcc	959	
atg cct gtc ttc ctg gac ccc gca gac att gcc acc tta gag ggc atc		1007
Met Pro Val Phe Leu Asp Pro Ala Asp Ile Ala Thr Leu Glu Gly Ile		
1 5 10 15		
agc tgg agg tta ccc agt gcc ccg tct gat gag gct tcc ttc cct ggc		1055
Ser Trp Arg Leu Pro Ser Ala Pro Ser Asp Glu Ala Ser Phe Pro Gly		
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aag gag gcc ttg gct gcc ttc ttg ggc tgg ttt gat tac tgc gac cac		1103
Lys Glu Ala Leu Ala Ala Phe Leu Gly Trp Phe Asp Tyr Cys Asp His		
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ctc atc aca gag gca cac acg gtg gtt gcg gac gcc ttg gcg aag gct		1151
Leu Ile Thr Glu Ala His Thr Val Val Ala Asp Ala Leu Ala Lys Ala		
50 55 60		
gtg gct gag aac ttc ttc gtg gag acc ctg cag ccc cag ctc ctg cac		1199
Val Ala Glu Asn Phe Phe Val Glu Thr Leu Gln Pro Gln Leu Leu His		
65 70 75 80		

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ctg cgc cag ctt cgc tcc cct gcg ctg ctg cgg gag gcc gtg gct ttc Leu Arg Gln Leu Arg Ser Pro Ala Leu Leu Arg Glu Ala Val Ala Phe 100 105 110	1295
ctc ctg ggc aca gac cgg cag cct gaa gcc ccc ggg gac aac ccc cac Leu Leu Gly Thr Asp Arg Gln Pro Glu Ala Pro Gly Asp Asn Pro His 115 120 125	1343
acc ctg tat gct cat ctc atc ggg cat tgt gac cac ctc tct gat gag Thr Leu Tyr Ala His Leu Ile Gly His Cys Asp His Leu Ser Asp Glu 130 135 140	1391
atc agc atc acc aca ctc cgg ctg ttt gag gag ctg ctg cag aag ccc Ile Ser Ile Thr Thr Leu Arg Leu Phe Glu Glu Leu Leu Gln Lys Pro 145 150 155 160	1439
cac gag ggg atc atc cac agc ctg gtc ctg cgc aac ctt gag ggc cgc His Glu Gly Ile Ile His Ser Leu Val Leu Arg Asn Leu Glu Gly Arg 165 170 175	1487
cct tac gtg gcc tgg ggc tca cca gag cct gag agc tat gag gac acc Pro Tyr Val Ala Trp Gly Ser Pro Glu Pro Glu Ser Tyr Glu Asp Thr 180 185 190	1535
cta gac ctg gag gaa gac ccc tac ttc acc gac agc ttc ctg gat tcc Leu Asp Leu Glu Glu Asp Pro Tyr Phe Thr Asp Ser Phe Leu Asp Ser 195 200 205	1583
ggc ttt caa act ccc gca aag cct cgc cta gct cct gct acc agt tac Gly Phe Gln Thr Pro Ala Lys Pro Arg Leu Ala Pro Ala Thr Ser Tyr 210 215 220	1631
gat ggc aaa aca gca gtg acc gag atc gtc aac agt ttc ctg tgc ctg Asp Gly Lys Thr Ala Val Thr Glu Ile Val Asn Ser Phe Leu Cys Leu 225 230 235 240	1679
gtc ccc gag gaa gcc aag acc tct gcc ttc ctg gag gag aca ggc tat Val Pro Glu Glu Ala Lys Thr Ser Ala Phe Leu Glu Glu Thr Gly Tyr 245 250 255	1727
gac aca tac gtc cac gat gct tat ggc ctg ttc cag gag tgc agc tcc Asp Thr Tyr Val His Asp Ala Tyr Gly Leu Phe Gln Glu Cys Ser Ser 260 265 270	1775
cgc gtc gcc tcc tgg ggc tgg cct ctg acc ccc aca cct ttg gac ccc Arg Val Ala Ser Trp Gly Trp Pro Leu Thr Pro Thr Pro Leu Asp Pro 275 280 285	1823
cat gag ccc gag cga cct ttc ttc gag ggc cac ttc ctc cga gtg ctg His Glu Pro Glu Arg Pro Phe Phe Glu Gly His Phe Leu Arg Val Leu 290 295 300	1871
ttt gac cgc atg tcc cgg att ctg gat cag cca tac agc ctg aac ctg Phe Asp Arg Met Ser Arg Ile Leu Asp Gln Pro Tyr Ser Leu Asn Leu 305 310 315 320	1919
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agg agc cta ttc tcc gtg ttg gtg agg gtg atc ggg gac ttg atg cag Arg Ser Leu Phe Ser Val Leu Val Arg Val Ile Gly Asp Leu Met Gln 355 360 365	2063
aga atc cag agg gta ccc cag ttc cca ggc aag ctg ctc ctg gtg cgc Arg Ile Gln Arg Val Pro Gln Phe Pro Gly Lys Leu Leu Leu Val Arg 370 375 380	2111
aag cag ttg acg ggc cag gct cct ggg gag cag ctg gac cac cag acc Lys Gln Leu Thr Gly Gln Ala Pro Gly Glu Gln Leu Asp His Gln Thr 385 390 395 400	2159
ctc ctc cag ggc gtg gtg ctg gag gag ttc tgc aag gag ctg gct Leu Leu Gln Gly Val Val Val Leu Glu Glu Phe Cys Lys Glu Leu Ala 405 410 415	2207
gcc att gcc ttc gtc aag ttt ccc cca cat gat cct cgc cag aac gtc Ala Ile Ala Phe Val Lys Phe Pro Pro His Asp Pro Arg Gln Asn Val 420 425 430	2255
tcc cca gcc ccg gaa ggg cag gtc tga gccagcacca gggcggtggg Ser Pro Ala Pro Glu Gly Gln Val 435 440	2302
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 35 40 45

Leu Ile Thr Glu Ala His Thr Val Val Ala Asp Ala Leu Ala Lys Ala
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Val Ala Glu Asn Phe Phe Val Glu Thr Leu Gln Pro Gln Leu Leu His
 65 70 75 80

Val Ser Glu Gln Ser Ile Leu Thr Ser Thr Ala Leu Leu Thr Ala Met
 85 90 95

Leu Arg Gln Leu Arg Ser Pro Ala Leu Leu Arg Glu Ala Val Ala Phe
 100 105 110

Leu Leu Gly Thr Asp Arg Gln Pro Glu Ala Pro Gly Asp Asn Pro His
 115 120 125

Thr Leu Tyr Ala His Leu Ile Gly His Cys Asp His Leu Ser Asp Glu
 130 135 140

Ile Ser Ile Thr Thr Leu Arg Leu Phe Glu Glu Leu Leu Gln Lys Pro
 145 150 155 160

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Pro Tyr Val Ala Trp Gly Ser Pro Glu Pro Glu Ser Tyr Glu Asp Thr
180 185 190

Leu Asp Leu Glu Glu Asp Pro Tyr Phe Thr Asp Ser Phe Leu Asp Ser
195 200 205

Gly Phe Gln Thr Pro Ala Lys Pro Arg Leu Ala Pro Ala Thr Ser Tyr
210 215 220

Asp Gly Lys Thr Ala Val Thr Glu Ile Val Asn Ser Phe Leu Cys Leu
225 230 235 240

Val Pro Glu Glu Ala Lys Thr Ser Ala Phe Leu Glu Glu Thr Gly Tyr
245 250 255

Asp Thr Tyr Val His Asp Ala Tyr Gly Leu Phe Gln Glu Cys Ser Ser
260 265 270

Arg Val Ala Ser Trp Gly Trp Pro Leu Thr Pro Thr Pro Leu Asp Pro
275 280 285

His Glu Pro Glu Arg Pro Phe Phe Glu Gly His Phe Leu Arg Val Leu
290 295 300

Phe Asp Arg Met Ser Arg Ile Leu Asp Gln Pro Tyr Ser Leu Asn Leu
305 310 315 320

Gln Val Thr Ser Val Leu Ser Arg Leu Ala Leu Phe Pro His Pro His
325 330 335

Ile His Glu Tyr Leu Leu Asp Pro Tyr Ile Ser Leu Ala Pro Gly Cys
340 345 350

Arg Ser Leu Phe Ser Val Leu Val Arg Val Ile Gly Asp Leu Met Gln
355 360 365

Arg Ile Gln Arg Val Pro Gln Phe Pro Gly Lys Leu Leu Leu Val Arg
370 375 380

Lys Gln Leu Thr Gly Gln Ala Pro Gly Glu Gln Leu Asp His Gln Thr
385 390 395 400

Leu Leu Gln Gly Val Val Val Leu Glu Glu Phe Cys Lys Glu Leu Ala
405 410 415

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Met Gln Asn Asn Glu Ile Ile Lys Pro Ala Lys Tyr Phe Ser
1 5 10
gaa ttg gaa aag agc atc ctg ctg gct tta gta gaa aag tat aaa tat 157
Glu Leu Glu Lys Ser Ile Leu Leu Ala Leu Val Glu Lys Tyr Lys Tyr
15 20 25 30
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Val Leu Glu Cys Lys Ser Asp Ala Arg Thr Ile Ala Leu Lys Gln
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cgt acc tgg cag gcg ctg gcc cac gaa tac aac tct cag ccc agc gtg 253
Arg Thr Trp Gln Ala Leu Ala His Glu Tyr Asn Ser Gln Pro Ser Val
50 55 60
tcc ctg cgg gat ttc aaa cag ctg aag aag tgc tgg gag aac atc aag 301
Ser Leu Arg Asp Phe Lys Gln Leu Lys Lys Cys Trp Glu Asn Ile Lys
65 70 75
gct cgg acc aaa aaa att atg gcc cat gaa agg aga gag aaa gtg aaa 349
Ala Arg Thr Lys Lys Ile Met Ala His Glu Arg Arg Glu Lys Val Lys
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cgg agc gtc agc cct ctc ctg agt acc cac gtc cta ggg aag gag aag 397
Arg Ser Val Ser Pro Leu Leu Ser Thr His Val Leu Gly Lys Glu Lys
95 100 105 110
atc gcc agc atg ctg ccg gag cag ctc tac ttc ctg cag agc ccc ccg 445
Ile Ala Ser Met Leu Pro Glu Gln Leu Tyr Phe Leu Gln Ser Pro Pro
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gag gag gag ccc gaa tac cac ccc gac gcc tca gcc caa gaa tca ttt 493
Glu Glu Glu Pro Glu Tyr His Pro Asp Ala Ser Ala Gln Glu Ser Phe
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gct gtt tca aat aga gaa ctg tgc gat gat gag aaa gag ttc ata cat 541
Ala Val Ser Asn Arg Glu Leu Cys Asp Asp Glu Lys Glu Phe Ile His
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ata aaa atg gaa gtt ctc aat aaa aag aag atg tat tgg gaa aga aaa Ile Lys Met Glu Val Leu Asn Lys Lys Met Tyr Trp Glu Arg Lys 240 245 250	829
cta caa act ttt acc aag gaa tgg cct gtt tcc tca ttt aac cgg ccc Leu Gln Thr Phe Thr Lys Glu Trp Pro Val Ser Ser Phe Asn Arg Pro 255 260 265 270	877
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35 40 45

Trp Gln Ala Leu Ala His Glu Tyr Asn Ser Gln Pro Ser Val Ser Leu
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Arg Asp Phe Lys Gln Leu Lys Lys Cys Trp Glu Asn Ile Lys Ala Arg
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Thr Lys Lys Ile Met Ala His Glu Arg Arg Glu Lys Val Lys Arg Ser
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Val Ser Pro Leu Leu Ser Thr His Val Leu Gly Lys Glu Lys Ile Ala
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Ser Met Leu Pro Glu Gln Leu Tyr Phe Leu Gln Ser Pro Pro Glu Glu
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Glu Pro Glu Tyr His Pro Asp Ala Ser Ala Gln Glu Ser Phe Ala Val
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Ser Asn Arg Glu Leu Cys Asp Asp Glu Lys Glu Phe Ile His Phe Pro
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Val Cys Glu Gly Thr Ser Gln Pro Glu Pro Ser Cys Ser Ala Val Arg
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Ile Thr Ala Asn Lys Asn Tyr Arg Ser Lys Thr Ser Gln Glu Gly Ala
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Leu Lys Lys Met His Glu Glu Glu His His Gln Gln Met Ser Ile Leu
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Gln Leu Gln Leu Ile Gln Met Asn Glu Val His Val Ala Lys Ile Gln
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Gln Ile Glu Arg Glu Cys Glu Met Ala Glu Glu Glu His Arg Ile Lys
225 230 235 240

Met Glu Val Leu Asn Lys Lys Lys Met Tyr Trp Glu Arg Lys Leu Gln
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Ser Glu Pro Lys Leu Ser Lys Asn Glu Leu Lys Arg Arg Leu Lys Ala
15 20 25

gag aag aaa gta gca gag aag gag gcc aaa cag aag gag ctc agt gag 146
Glu Lys Lys Val Ala Glu Lys Glu Ala Lys Gln Lys Glu Leu Ser Glu
30 35 40 45

aaa cag cta agc caa gcc act gct gct gcc acc aac cac acc act gat 194
Lys Gln Leu Ser Gln Ala Thr Ala Ala Thr Asn His Thr Thr Asp
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aat ggt gtg ggt cct gag gaa gag agc gtg gac cca aatcaa tac tac 242
Asn Gly Val Gly Pro Glu Glu Ser Val Asp Pro Asn Gln Tyr Tyr
65 70 75

aaa atc cgc agt caa gca att cat cag ctg aag gtc aat ggg gaa gac 290
Lys Ile Arg Ser Gln Ala Ile His Gln Leu Lys Val Asn Gly Glu Asp
80 85 90

cca tac cca cac aag ttc cat gta gac atc tca ctc act gac ttc atc 338
Pro Tyr Pro His Lys Phe His Val Asp Ile Ser Leu Thr Asp Phe Ile
95 100 105

caa aaa tat agt cac ctg cag cct ggg gat cac ctg act gac atc acc 386
Gln Lys Tyr Ser His Leu Gln Pro Gly Asp His Leu Thr Asp Ile Thr
110 115 120 125

tta aag gtg gca ggt agg atc cat gcc aaa aga gct tct ggg gga aag 434
Leu Lys Val Ala Gly Arg Ile His Ala Lys Arg Ala Ser Gly Gly Lys
130 135 140

ctc atc ttc tat gat ctt cga gga gag ggg gtg aag ttg caa gtc atg 482
Leu Ile Phe Tyr Asp Leu Arg Gly Glu Gly Val Lys Leu Gln Val Met
145 150 155

gcc aat tcc aga aat tat aaa tca gaa gaa gaa ttt att cat att aat 530
Ala Asn Ser Arg Asn Tyr Lys Ser Glu Glu Phe Ile His Ile Asn
160 165 170

aac aaa ctg cgt cgg gga gac ata att gga gtt cag ggg aat cct ggt 578
Asn Lys Leu Arg Arg Gly Asp Ile Ile Gly Val Gln Gly Asn Pro Gly
175 180 185

aaa acc aag aag ggt gag ctg agc atc att ccg tat gag atc aca ctg 626
Lys Thr Lys Lys Gly Glu Leu Ser Ile Ile Pro Tyr Glu Ile Thr Leu
190 195 200 205

ctg tct ccc tgt ttg cat atg tta cct cat ctt cac ttt ggc ctc aaa 674
Leu Ser Pro Cys Leu His Met Leu Pro His Leu His Phe Gly Leu Lys
210 215 220

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gac ttt gtg agg cag aaa ttt atc atc cgc tct aag atc atc aca tat Asp Phe Val Arg Gin Lys Phe Ile Ile Arg Ser Lys Ile Ile Thr Tyr 240 245 250	770
ata aga agt ttc tta gat gag ctg gga ttc cta gag att gaa act ccc Ile Arg Ser Phe Leu Asp Glu Leu Gly Phe Leu Glu Ile Glu Thr Pro 255 260 265	818
atg atg aac atc atc cca ggg gga gcc gtg gcc aag cct ttc atc act Met Met Asn Ile Ile Pro Gly Gly Ala Val Ala Lys Pro Phe Ile Thr 270 275 280 285	866
tat cac aac gag ctg gac atg aac tta tat atg aga att gct cca gaa Tyr His Asn Glu Leu Asp Met Asn Leu Tyr Met Arg Ile Ala Pro Glu 290 295 300	914
ctc tat cat aag atg ctt gtg gtt ggt ggc atc gac cgg gtt tat gaa Leu Tyr His Lys Met Leu Val Val Gly Gly Ile Asp Arg Val Tyr Glu 305 310 315	962
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ctc atg gaa atc acg gag aag atg gtt tca ggg atg gtg aag cat att Leu Met Glu Ile Thr Glu Lys Met Val Ser Gly Met Val Lys His Ile 350 355 360 365	1106
aca ggc agt tac aag gtc acc tac cac cca gat ggc cca gag ggc caa Thr Gly Ser Tyr Lys Val Thr Tyr His Pro Asp Gly Pro Glu Gly Gln 370 375 380	1154
gcc tac gat gtt gac ttc acc cca ccc ttc cg ^g cga atc aac atg gta Ala Tyr Asp Val Asp Phe Thr Pro Pro Phe Arg Arg Ile Asn Met Val 385 390 395	1202
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aag ctt gtt ggg gag ttc ctg gaa gtg act tgc atc aat cct aca ttc Lys Leu Val Gly Glu Phe Leu Glu Val Thr Cys Ile Asn Pro Thr Phe 450 455 460	1394
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cag ctt ttt gaa gaa cag gcc aag gcc aag gct gca ggt gat gat gag Gln Leu Phe Glu Glu Gln Ala Lys Ala Lys Ala Ala Gly Asp Asp Glu 510 515 520 525	1586
gcc atg ttc ata gat gaa aac ttc tgt act gcc ctg gaa tat ggg ctg Ala Met Phe Ile Asp Glu Asn Phe Cys Thr Ala Leu Glu Tyr Gly Leu 530 535 540	1634
ccc ccc aca gct ggc tgg ggc atg ggc att gat cga gtc gcc atg ttt Pro Pro Thr Ala Gly Trp Gly Met Gly Ile Asp Arg Val Ala Met Phe 545 550 555	1682
ctc acg gac tcc aac aac atc aag gaa gta ctt ctg ttt cct gcc atg Leu Thr Asp Ser Asn Asn Ile Lys Glu Val Leu Leu Phe Pro Ala Met 560 565 570	1730
aaa ccc gaa gac aag aag gag aat gta gca acc act gat aca ctg gaa Lys Pro Glu Asp Lys Lys Glu Asn Val Ala Thr Thr Asp Thr Leu Glu 575 580 585	1778
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35 40 45

Ser Gln Ala Thr Ala Ala Ala Thr Asn His Thr Thr Asp Asn Gly Val
50 55 60

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Gly Pro Glu Glu Glu Ser Val Asp Pro Asn Gln Tyr Tyr Lys Ile Arg
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Ser Gln Ala Ile His Gln Leu Lys Val Asn Gly Glu Asp Pro Tyr Pro
85 90 95

His Lys Phe His Val Asp Ile Ser Leu Thr Asp Phe Ile Gln Lys Tyr
100 105 110

Ser His Leu Gln Pro Gly Asp His Leu Thr Asp Ile Thr Leu Lys Val
115 120 125

Ala Gly Arg Ile His Ala Lys Arg Ala Ser Gly Gly Lys Leu Ile Phe
130 135 140

Tyr Asp Leu Arg Gly Glu Gly Val Lys Leu Gln Val Met Ala Asn Ser
145 150 155 160

Arg Asn Tyr Lys Ser Glu Glu Glu Phe Ile His Ile Asn Asn Lys Leu
165 170 175

Arg Arg Gly Asp Ile Ile Gly Val Gln Gly Asn Pro Gly Lys Thr Lys
180 185 190

Lys Gly Glu Leu Ser Ile Ile Pro Tyr Glu Ile Thr Leu Leu Ser Pro
195 200 205

Cys Leu His Met Leu Pro His Leu His Phe Gly Leu Lys Asp Lys Glu
210 215 220

Thr Arg Tyr Arg Gln Arg Tyr Leu Asp Leu Ile Leu Asn Asp Phe Val
225 230 235 240

Arg Gln Lys Phe Ile Ile Arg Ser Lys Ile Ile Thr Tyr Ile Arg Ser
245 250 255

Phe Leu Asp Glu Leu Gly Phe Leu Glu Ile Glu Thr Pro Met Met Asn
260 265 270

Ile Ile Pro Gly Gly Ala Val Ala Lys Pro Phe Ile Thr Tyr His Asn
275 280 285

Glu Leu Asp Met Asn Leu Tyr Met Arg Ile Ala Pro Glu Leu Tyr His
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Lys Met Leu Val Val Gly Gly Ile Asp Arg Val Tyr Glu Ile Gly Arg
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Gln Phe Arg Asn Glu Gly Ile Asp Leu Thr His Asn Pro Glu Phe Thr
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Thr Cys Glu Phe Tyr Met Ala Tyr Ala Asp Tyr His Asp Leu Met Glu
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Ile Thr Glu Lys Met Val Ser Gly Met Val Lys His Ile Thr Gly Ser
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Tyr Lys Val Thr Tyr His Pro Asp Gly Pro Glu Gly Gln Ala Tyr Asp
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Glu Cys Pro Pro Pro Arg Thr Thr Ala Arg Leu Leu Asp Lys Leu Val
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Gly Glu Phe Leu Glu Val Thr Cys Ile Asn Pro Thr Phe Ile Cys Asp
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His Pro Gln Ile Met Ser Pro Leu Ala Lys Trp His Arg Ser Lys Glu
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Gly Leu Thr Glu Arg Phe Glu Leu Phe Val Met Lys Lys Glu Ile Cys
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Glu Glu Gln Ala Lys Ala Lys Ala Ala Gly Asp Asp Glu Ala Met Phe
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Ala Gly Trp Gly Met Gly Ile Asp Arg Val Ala Met Phe Leu Thr Asp
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Ser Asn Asn Ile Lys Glu Val Leu Leu Phe Pro Ala Met Lys Pro Glu
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caaggaaag ataaaaatt ataaccaagc ataatatagc aaggactaac ccctataacct 180
tctgcataat gaattaacta gaaataactt tgcaaggaga gccaaagcta agacccccga 240
aaccagacga gctacctaag aacagctaaa agagcacacc cgtctatgta gcaaaatagt 300
ggaaagattt ataggttagag gcgacaaacc taccgagcct ggtgatagct gtttgtccaa 360
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ttaactgtta gtccaaagag gaacagctt ttggacacta ggaaaaacc ttgttagagag 480
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ggaccaatct atcaccctat agaagaacta atgttagtat aagtaacatg aaaacattct 660
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cagggttccc cagcc atg aat ctc ttc cga ttc ctg gga gac ctc tcc cac 231
Met Asn Leu Phe Arg Phe Leu Gly Asp Leu Ser His
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tgc gcc gga att tca ggg aag agc cag gtc ctg ttt gct gtg gtg ttc Cys Ala Gly Ile Ser Gly Lys Ser Gln Val Leu Phe Ala Val Val Phe 30 35 40	327
act gcc cga tat ctg gac ctc ttc acc aac tac atc tca ctc tac aac Thr Ala Arg Tyr Leu Asp Leu Phe Thr Asn Tyr Ile Ser Leu Tyr Asn 45 50 55 60	375
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Ser Gly Lys Ser Gln Val Leu Phe Ala Val Val Phe Thr Ala Arg Tyr
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Val Val Tyr Ile Ala Cys Ser Phe Thr Thr Val Trp Leu Ile Tyr Ser
65 70 75 80

Lys Phe Lys Ala Thr Tyr Asp Gly Asn His Asp Thr Phe Arg Val Glu
85 90 95

Phe Leu Val Val Pro Thr Ala Ile Leu Ala Phe Leu Val Asn His Asp
100 105 110

Phe Thr Pro Leu Glu Ile Leu Trp Thr Phe Ser Ile Tyr Leu Glu Ser
115 120 125

Val Ala Ile Leu Pro Gln Leu Phe Met Val Ser Lys Thr Gly Glu Ala
130 135 140

Glu Thr Ile Thr Ser His Tyr Leu Phe Ala Leu Gly Val Tyr Arg Thr
145 150 155 160

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Leu Tyr Leu Phe Asn Trp Ile Trp Arg Tyr His Phe Glu Gly Phe Phe
165 170 175

Asp Leu Ile Ala Ile Val Ala Gly Leu Val Gln Thr Val Leu Tyr Cys
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ggtgcttggaa gctccagcag ctggctggag cccgcg atg acg tca cg^g act cg^g 174
Met Thr Ser Arg Thr Arg
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gtc aca tgg ccg agt ccg ccc cgc ccc ctc ccc gtc ccc gcc gct gca 222
Val Thr Trp Pro Ser Pro Arg Pro Leu Pro Val Pro Ala Ala Ala
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gcc gtc gcc ttc gga gc^g aag ggt acc gac ccg gca gaa gct cg^g agc 270
Ala Val Ala Phe Gly Ala Lys Gly Thr Asp Pro Ala Glu Ala Arg Ser
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tct cgg ggt atc gag gag gca ggc ccg cg^g g^g cac ggg cga gc^g ggc 318
Ser Arg Gly Ile Glu Glu Ala Gly Pro Arg Ala His Gly Arg Ala Gly
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Arg Glu Pro Glu Arg Arg Ser Arg Gln Gln Arg Arg Gly Gly Leu
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Gln Ala Arg Arg Ser Thr Leu Leu Lys Thr Cys Ala Arg Ala Arg Ala
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Thr Ala Pro Gly Ala Met Lys Met Val Ala Pro Trp Thr Arg Phe Tyr
90 95 100
tcc aac agc tgc tgc ttg tgc tgc cat gtc gc^g acc ggc acc atc ctg 510
Ser Asn Ser Cys Cys Leu Cys Cys His Val Arg Thr Gly Thr Ile Leu
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gttctaatta	ggtaaataga	agtccattatg	tatgtgttac	aagaatttcc	cccacaacat	1620
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tgactttatc	gagtggaaatt	ggatatattt	tgatatactt	ctgcctaaca	acatggaaaa	1980
gggtttctt	ttccctgcaa	gctacatcct	actgcttga	acttccaagt	atgtctagtc	2040
acctttaaa	atgtaaacat	tttcagaaaa	atgaggattt	ccttccttgt	atgcgtttt	2100
taccttgaact	acctgaattt	caaggattt	ttatataattc	atatgttaca	aagttagcaa	2160
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35 40 45

Ala His Gly Arg Ala Gly Arg Glu Pro Glu Arg Arg Ser Arg Gln
50 55 60

Gln Arg Arg Gly Gly Leu Gln Ala Arg Arg Ser Thr Leu Leu Lys Thr
65 70 75 80

Cys Ala Arg Ala Arg Ala Thr Ala Pro Gly Ala Met Lys Met Val Ala
85 90 95

Pro Trp Thr Arg Phe Tyr Ser Asn Ser Cys Cys Leu Cys Cys His Val
100 105 110

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Arg Thr Gly Thr Ile Leu Leu Gly Val Trp Tyr Leu Ile Ile Asn Ala
115 120 125

Val Val Leu Leu Ile Leu Leu Ser Ala Leu Ala Asp Pro Asp Gln Tyr
130 135 140

Asn Phe Ser Ser Ser Glu Leu Gly Gly Asp Phe Glu Phe Met Asp Asp
145 150 155 160

Ala Asn Met Cys Ile Ala Ile Ala Ile Ser Leu Leu Met Ile Leu Ile
165 170 175

Cys Ala Met Ala Thr Tyr Gly Ala Tyr Lys Gln Arg Ala Ala Trp Ile
180 185 190

Ile Pro Phe Phe Cys Tyr Gln Ile Phe Asp Phe Ala Leu Asn Met Leu
195 200 205

Val Ala Ile Thr Val Leu Ile Tyr Pro Asn Ser Ile Gln Glu Tyr Ile
210 215 220

Arg Gln Leu Pro Pro Asn Phe Pro Tyr Arg Asp Asp Val Met Ser Val
225 230 235 240

Asn Pro Thr Cys Leu Val Leu Ile Ile Leu Leu Phe Ile Ser Ile Ile
245 250 255

Leu Thr Phe Lys Gly Tyr Leu Ile Ser Cys Val Trp Asn Cys Tyr Arg
260 265 270

Tyr Ile Asn Gly Arg Asn Ser Ser Asp Val Leu Val Tyr Val Thr Ser
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Asn Asp Thr Thr Val Leu Leu Pro Pro Tyr Asp Asp Ala Thr Val Asn
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Gly Ala Ala Lys Glu Pro Pro Pro Pro Tyr Val Ser Ala
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1 5 10 15		
ctg ctg gaa gtg cag ggc tcg cg 5 cct ggc aag aat gta cag ctg aca	Leu Leu Glu Val Gln Gly Ser Arg Pro Gly Lys Asn Val Gln Leu Thr	157
20 25 30		
gag aac gag atc cgc ggt ctg tgc ctg aaa tcc cgg gag att ttt ctg	Glu Asn Glu Ile Arg Gly Leu Cys Leu Lys Ser Arg Glu Ile Phe Leu	205
35 40 45		
agc cag ccc att ctt ctg gag ctg gag gca ccc ctc aag atc tgc ggt	Ser Gln Pro Ile Leu Leu Glu Leu Glu Ala Pro Leu Lys Ile Cys Gly	253
50 55 60		
gac ata cac ggc cag tac tac gac ctt ctg cga cta ttt gag tat ggc	Asp Ile His Gly Gln Tyr Tyr Asp Leu Leu Arg Leu Phe Glu Tyr Gly	301
65 70 75		
ggt ttc cct ccc gag agc aac tac ctc ttt ctg ggg gac tat gtg gac	Gly Phe Pro Pro Glu Ser Asn Tyr Leu Phe Leu Gly Asp Tyr Val Asp	349
80 85 90 95		
agg ggc aag cag tcc ttg gag acc atc tgc ctg ctg ctg gcc tat aag	Arg Gly Lys Gln Ser Leu Glu Thr Ile Cys Leu Leu Ala Tyr Lys	397
100 105 110		
atc aag tac ccc gag aac ttc ttc ctg ctc cgt ggg aac cac gag tgt	Ile Lys Tyr Pro Glu Asn Phe Leu Leu Arg Gly Asn His Glu Cys	445
115 120 125		
gcc agc atc aac cgc atc tat ggt ttc tac gat gag tgc aag aga cgc	Ala Ser Ile Asn Arg Ile Tyr Gly Phe Tyr Asp Glu Cys Lys Arg Arg	493
130 135 140		
tac aac atc aaa ctg tgg aaa acc ttc act gac tgc ttc aac tgc ctg	Tyr Asn Ile Lys Leu Trp Lys Thr Phe Thr Asp Cys Phe Asn Cys Leu	541
145 150 155		
ccc atc gcg gcc ata gtg gac gaa aag atc ttc tgc tgc cac gga ggc	Pro Ile Ala Ala Ile Val Asp Glu Lys Ile Phe Cys Cys His Gly Gly	589
160 165 170 175		
ctg tcc ccg gac ctg cag tct atg gag cag att cgg cgg atc atg cgg	Leu Ser Pro Asp Leu Gln Ser Met Glu Gln Ile Arg Arg Ile Met Arg	637
180 185 190		
ccc aca gat gtg cct gac cag ggc ctg ctg tgt gac ctg ctg tgg tct	Pro Thr Asp Val Pro Asp Gln Gly Leu Leu Cys Asp Leu Leu Trp Ser	685
195 200 205		
gac cct gac aag gac gtg cag ggc tgg ggc gag aac gac cgt ggc gtc	Asp Pro Asp Lys Asp Val Gln Gly Trp Gly Glu Asn Asp Arg Gly Val	733
210 215 220		
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225 230 235		

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Asn Glu Ile Arg Gly Leu Cys Leu Lys Ser Arg Glu Ile Phe Leu Ser
35 40 45

Gln Pro Ile Leu Leu Glu Leu Glu Ala Pro Leu Lys Ile Cys Gly Asp
50 55 60

Ile His Gly Gln Tyr Tyr Asp Leu Leu Arg Leu Phe Glu Tyr Gly Gly
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65

70

75

80

Phe Pro Pro Glu Ser Asn Tyr Leu Phe Leu Gly Asp Tyr Val Asp Arg
85 90 95

Gly Lys Gln Ser Leu Glu Thr Ile Cys Leu Leu Leu Ala Tyr Lys Ile
100 105 110

Lys Tyr Pro Glu Asn Phe Phe Leu Leu Arg Gly Asn His Glu Cys Ala
115 120 125

Ser Ile Asn Arg Ile Tyr Gly Phe Tyr Asp Glu Cys Lys Arg Arg Tyr
130 135 140

Asn Ile Lys Leu Trp Lys Thr Phe Thr Asp Cys Phe Asn Cys Leu Pro
145 150 155 160

Ile Ala Ala Ile Val Asp Glu Lys Ile Phe Cys Cys His Gly Gly Leu
165 170 175

Ser Pro Asp Leu Gln Ser Met Glu Gln Ile Arg Arg Ile Met Arg Pro
180 185 190

Thr Asp Val Pro Asp Gln Gly Leu Leu Cys Asp Leu Leu Trp Ser Asp
195 200 205

Pro Asp Lys Asp Val Gln Gly Trp Gly Glu Asn Asp Arg Gly Val Ser
210 215 220

Phe Thr Phe Gly Ala Glu Val Val Ala Lys Phe Leu His Lys His Asp
225 230 235 240

Leu Asp Leu Ile Cys Arg Ala His Gln Val Val Glu Asp Gly Tyr Glu
245 250 255

Phe Phe Ala Lys Arg Gln Leu Val Thr Leu Phe Ser Ala Pro Asn Tyr
260 265 270

Cys Gly Glu Phe Asp Asn Ala Gly Ala Met Met Ser Val Asp Glu Thr
275 280 285

Leu Met Cys Ser Phe Gln Ile Leu Lys Pro Ala Asp Lys Asn Lys Gly
290 295 300

Lys Tyr Gly Gln Phe Ser Gly Leu Asn Pro Gly Gly Arg Pro Ile Thr
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Pro Pro Arg Asn Ser Ala Lys Ala Lys Lys
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	Val Gly Arg Leu Leu Arg Ala Ser Val Ala Arg His Val Ser Ala Ile	
	15	20
25	cct tgg ggc att tct gcc act gca gcc ctc agg cct gct gca tgt gga	151
	Pro Trp Gly Ile Ser Ala Thr Ala Ala Leu Arg Pro Ala Ala Cys Gly	
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40	aga acg agc ttg aca aat tta ttg tgt tct ggt tcc agt caa gca aaa	199
	Arg Thr Ser Leu Thr Asn Leu Leu Cys Ser Gly Ser Ser Gln Ala Lys	
	45	50
55	tta ttc agc acc agt tcc tca tgc cat gca cct gct gtc acc cag cat	247
	Leu Phe Ser Thr Ser Ser Cys His Ala Pro Ala Val Thr Gln His	
	60	65
70	gca ccc tat ttt aag ggt aca gcc gtt gtc aat gga gag ttc aaa gac	295
	Ala Pro Tyr Phe Lys Gly Thr Ala Val Val Asn Gly Glu Phe Lys Asp	
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85	cta agc ctt gat gac ttt aag ggg aaa tat ttg gtg ctt ttc ttc tat	343
	Leu Ser Leu Asp Asp Phe Lys Gly Lys Tyr Leu Val Leu Phe Phe Tyr	
	90	95
105	cct ttg gat ttc acc ttt gtg tgt cct aca gaa att gtt gct ttt agt	391
	Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile Val Ala Phe Ser	
	110	115
120	gac aaa gct aac gaa ttt cac gac gtg aac tgt gaa gtt gtc gca gtc	439
	Asp Lys Ala Asn Glu Phe His Asp Val Asn Cys Glu Val Val Ala Val	
	125	130
135	tca gtg gat tcc cac ttt agc cat ctt gcc tgg ata aat aca cca agg	487
	Ser Val Asp Ser His Phe Ser His Leu Ala Trp Ile Asn Thr Pro Arg	
	140	145
150	aag aat ggt ggt ttg ggc cac atg aac atc gca ctc ttg tca gac tta	535
	Lys Asn Gly Gly Leu Gly His Met Asn Ile Ala Leu Leu Ser Asp Leu	
	155	160
165	act aag cag att tcc cga gac tac ggt gtg ctg tta gaa ggt tct ggt	583
	Thr Lys Gln Ile Ser Arg Asp Tyr Gly Val Leu Leu Glu Gly Ser Gly	
	170	175
	180	

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cat ttg agc gtc aac gat ctc cca gtg ggc cga agc gtg gaa gaa acc His Leu Ser Val Asn Asp Leu Pro Val Gly Arg Ser Val Glu Glu Thr 200 205 210	679
ctc cgc ttg gtg aag gcg ttc cag tat gta gaa aca cat gga gaa gtc Leu Arg Leu Val Lys Ala Phe Gln Tyr Val Glu Thr His Gly Glu Val 215 220 225	727
tgc cca gcg aac tgg aca ccg gat tct cct acg atc aag cca agt cca Cys Pro Ala Asn Trp Thr Pro Asp Ser Pro Thr Ile Lys Pro Ser Pro 230 235 240	775
gct gct tcc aaa gag tac ttt cag aag gta aat cag tag atcacccatg Ala Ala Ser Lys Glu Tyr Phe Gln Lys Val Asn Gln 245 250 255	824
tgtatctgca ccttctcaac tgagagaaga accacagttg aaacctgctt ttatcatttt caagatggtt attttagaa ggcaaggaac caattatgct tgtattcata agtattactc taaatgtttt gttttgtaa ttctggctaa gacctttaa acatggtag ttgcttagac aaggaatcct ttattggtaa catctggtg gctggctagc tagttctac agaacataat ttgcctctat agaaggctat tcttagatca tgtctcaatg gaaacactct tctttcttag ccttacttga atcttgcccta taataaagta gagcaacaca cattgaaagc ttctgatcaa cggtcctgaa attttcatct tgaatgtctt tgtattaaac tgaattttct tttaagctaa caaagatcat aattttcaat gattagccgt gtaactcctg caatgaatgt ttatgtgatt gaagcaaatg tgaatcgtat tattttaaaa agtggcagag tgacttaact gatcatgcat gatccctcat ccctgaaatt gagtttatgt agtcattttt cttttttat tcattagcta actttgtcta tgtatatttc tagatattga ttagtgtaaat cgattataaa ggatatttat caaatccagg gattgcattt tgaaattata attattttct ttgctgaagt attcattgta aaacatacaa aataaacata tttaaaaca tttgcatttt accacca	884 944 1004 1064 1124 1184 1244 1304 1364 1424 1484 1544 1591

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Val Ser Ala Ile Pro Trp Gly Ile Ser Ala Thr Ala Ala Leu Arg Pro
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Ala Ala Cys Gly Arg Thr Ser Leu Thr Asn Leu Leu Cys Ser Gly Ser
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35 40 45

Ser Gln Ala Lys Leu Phe Ser Thr Ser Ser Ser Cys His Ala Pro Ala
50 55 60

Val Thr Gln His Ala Pro Tyr Phe Lys Gly Thr Ala Val Val Asn Gly
65 70 75 80

Glu Phe Lys Asp Leu Ser Leu Asp Asp Phe Lys Gly Lys Tyr Leu Val
85 90 95

Leu Phe Phe Tyr Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile
100 105 110

Val Ala Phe Ser Asp Lys Ala Asn Glu Phe His Asp Val Asn Cys Glu
115 120 125

Val Val Ala Val Ser Val Asp Ser His Phe Ser His Leu Ala Trp Ile
130 135 140

Asn Thr Pro Arg Lys Asn Gly Gly Leu Gly His Met Asn Ile Ala Leu
145 150 155 160

Leu Ser Asp Leu Thr Lys Gln Ile Ser Arg Asp Tyr Gly Val Leu Leu
165 170 175

Glu Gly Ser Gly Leu Ala Leu Arg Gly Leu Phe Ile Ile Asp Pro Asn
180 185 190

Gly Val Ile Lys His Leu Ser Val Asn Asp Leu Pro Val Gly Arg Ser
195 200 205

Val Glu Glu Thr Leu Arg Leu Val Lys Ala Phe Gln Tyr Val Glu Thr
210 215 220

His Gly Glu Val Cys Pro Ala Asn Trp Thr Pro Asp Ser Pro Thr Ile
225 230 235 240

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<210> 66
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<212> DNA
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ttc atg cct gta ttg gga ttt ggc acc tat gca cct cca gag gtt ccg	159	
Phe Met Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Pro Glu Val Pro		
15 20 25 30		
aga agt aaa gct ttg gag gtc aca aaa tta gca ata gaa gct ggg ttc	207	
Arg Ser Lys Ala Leu Glu Val Thr Lys Leu Ala Ile Glu Ala Gly Phe		
35 40 45		
cgc cat ata gat tct gct cat tta tac aat aat gag gag cag gtt gga	255	
Arg His Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly		
50 55 60		
ctg gcc atc cga agc aag att gca gat ggc agt gtg aag aga gaa gac	303	
Leu Ala Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp		
65 70 75		
ata ttc tac act tca aag ctt tgg tcc act ttt cat cga cca gag ttg	351	
Ile Phe Tyr Thr Ser Lys Leu Trp Ser Thr Phe His Arg Pro Glu Leu		
80 85 90		
gtc cga cca gcc ttg gaa aac tca ctg aag aaa gct caa ttg gac tat	399	
Val Arg Pro Ala Leu Glu Asn Ser Leu Lys Lys Ala Gln Leu Asp Tyr		
95 100 105 110		
gtt gac ctc tat ctt att cat tct cca atg tct cta aag cca ggt gag	447	
Val Asp Leu Tyr Leu Ile His Ser Pro Met Ser Leu Lys Pro Gly Glu		
115 120 125		
gaa ctt tca cca aca gat gaa aat gga aaa gta ata ttt gac ata gtg	495	
Glu Leu Ser Pro Thr Asp Glu Asn Gln Lys Val Ile Phe Asp Ile Val		
130 135 140		
gat ctc tgt acc acc tgg gag gcc atg gag aag tgt aag gat gca gga	543	
Asp Leu Cys Thr Trp Glu Ala Met Glu Lys Cys Lys Asp Ala Gly		
145 150 155		
ttg gcc aag tcc att ggg gtg tca aac ttc aac cgc agg cag ctg gag	591	
Leu Ala Lys Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu		
160 165 170		
atg atc ctc aac aag cca gga ctc aag tac aag cct gtc tgc aac cag	639	
Met Ile Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln		
175 180 185 190		
gta gaa tgt cat ccg tat ttc aac cgg agt aaa ttg cta gat ttc tgc	687	
Val Glu Cys His Pro Tyr Phe Asn Arg Ser Lys Leu Leu Asp Phe Cys		
195 200 205		
aag tcg aaa gat att gtt ctg gtt gcc tat agt gct ctg gga tct caa	735	
Lys Ser Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser Gln		
210 215 220		
cga gac aaa cga tgg gtg gac ccg aac tcc ccg gtg ctc ttg gag gac	783	
Arg Asp Lys Arg Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp		

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225 230 235

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Pro Val Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu
240 245 250

att gcc ctg cgc tac cag ctg cag cgt ggg gtt gtg gtc ctg gcc aag 879
Ile Ala Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys
255 260 265 270

agc tac aat gag cag cgc atc aga cag aac gtg cag gtt ttt gag ttc 927
Ser Tyr Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe
275 280 285

cag ttg act gca gag gac atg aaa gcc ata gat ggc cta gac aga aat 975
Gln Leu Thr Ala Glu Asp Met Lys Ala Ile Asp Gly Leu Asp Arg Asn
290 295 300

ctc cac tat ttt aac agt gat agt ttt gct agc cac cct aat tat cca 1023
Leu His Tyr Phe Asn Ser Asp Ser Phe Ala Ser His Pro Asn Tyr Pro
305 310 315

tat tca gat gaa tat taa catggagggc tttgcctgat gtctaccaga 1071
Tyr Ser Asp Glu Tyr
320

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Lys Ala Leu Glu Val Thr Lys Leu Ala Ile Glu Ala Gly Phe Arg His
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Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
50 55 60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65 70 75 80

Tyr Thr Ser Lys Leu Trp Ser Thr Phe His Arg Pro Glu Leu Val Arg
85 90 95

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Pro Ala Leu Glu Asn Ser Leu Lys Lys Ala Gln Leu Asp Tyr Val Asp
100 105 110

Leu Tyr Leu Ile His Ser Pro Met Ser Leu Lys Pro Gly Glu Glu Leu
115 120 125

Ser Pro Thr Asp Glu Asn Gly Lys Val Ile Phe Asp Ile Val Asp Leu
130 135 140

Cys Thr Thr Trp Glu Ala Met Glu Lys Cys Lys Asp Ala Gly Leu Ala
145 150 155 160

Lys Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu Met Ile
165 170 175

Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
180 185 190

Cys His Pro Tyr Phe Asn Arg Ser Lys Leu Leu Asp Phe Cys Lys Ser
195 200 205

Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser Gln Arg Asp
210 215 220

Lys Arg Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val
225 230 235 240

Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu Ile Ala
245 250 255

Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr
260 265 270

Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe Gln Leu
275 280 285

Thr Ala Glu Asp Met Lys Ala Ile Asp Gly Leu Asp Arg Asn Leu His
290 295 300

Tyr Phe Asn Ser Asp Ser Phe Ala Ser His Pro Asn Tyr Pro Tyr Ser
305 310 315 320

Asp Glu Tyr

<210> 68
<211> 1715

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<222> (37)..(591)

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Ser Arg Leu Ala Gln Glu Arg Lys Ala Trp Arg Lys Asp His Pro Phe
10 15 20

ggt ttc gtg gct gtc cca aca aaa aat ccc gat ggc acg atg aac ctc 150
Gly Phe Val Ala Val Pro Thr Lys Asn Pro Asp Gly Thr Met Asn Leu
25 30 35

atg aac tgg gag tgc gcc att cca gga aag aaa ggg act ccg tgg gaa 198
Met Asn Trp Glu Cys Ala Ile Pro Gly Lys Lys Gly Thr Pro Trp Glu
40 45 50

gga ggc ttg ttt aaa cta cgg atg ctt ttc aaa gat gat tat cca tct 246
Gly Gly Leu Phe Lys Leu Arg Met Leu Phe Lys Asp Asp Tyr Pro Ser
55 60 65 70

tcg cca cca aaa tgt aaa ttc gaa cca cca tta ttt cac ccg aat gtq 294
Ser Pro Pro Lys Cys Lys Phe Glu Pro Pro Leu Phe His Pro Asn Val
75 80 85

tac cct tcg ggg aca gtg tgc ctg tcc atc tta gag gag gac aag gac 342
Tyr Pro Ser Gly Thr Val Cys Leu Ser Ile Leu Glu Glu Asp Lys Asp
90 95 100

tgg agg cca gcc atc aca atc aaa cag atc cta tta gga ata cag gaa 390
Trp Arg Pro Ala Ile Thr Ile Lys Gln Ile Leu Leu Gly Ile Gln Glu
105 110 115

ctt cta aat gaa cca aat atc caa gac cca gct caa gca gag gcc tac 438
Leu Leu Asn Glu Pro Asn Ile Gln Asp Pro Ala Gln Ala Glu Ala Tyr
120 125 130

acg att tac tgg tta gta gca gcc ctg gcc ccg ctg gtg gca gct cct 486
Thr Ile Tyr Trp Leu Val Ala Ala Leu Ala Pro Leu Val Ala Ala Pro
135 140 145 150

ccc cgt ccc agc caa ggc cgc ctg gca gga cgg gag tgg agc aca cag 534
Pro Arg Pro Ser Gln Gly Arg Leu Ala Gly Arg Glu Trp Ser Thr Gln
155 160 165

gct cac cct agg gac agc cag ggt ccg cgc ctc tgt ggg gaa ggt cgg 582
Ala His Pro Arg Asp Ser Gln Gly Pro Arg Leu Cys Gly Glu Gly Arg
170 175 180

ggg gca taa accctgtggg cagcaggcac cgttgcacac cgtctgcgggt 631
Gly Ala

ggcatggat ggccccggag ccgtgtccag gggagggagc aggccaggtg acaggggctg 691

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agctgttctg	ggcaggtcca	taagaaggtg	ggttggggcc	tccgacccccc	actgctccgc	1171
ctgcagggtt	gagaaaccca	gccccatctc	accacgggtc	cccacacctc	tgaggaggtc	1231
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35 40 45

Lys Gly Thr Pro Trp Glu Gly Gly Leu Phe Lys Leu Arg Met Leu Phe
50 55 60

Lys Asp Asp Tyr Pro Ser Ser Pro Pro Lys Cys Lys Phe Glu Pro Pro
65 70 75 80

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Leu Phe His Pro Asn Val Tyr Pro Ser Gly Thr Val Cys Leu Ser Ile
85 90 95

Leu Glu Glu Asp Lys Asp Trp Arg Pro Ala Ile Thr Ile Lys Gln Ile
100 105 110

Leu Leu Gly Ile Gln Glu Leu Leu Asn Glu Pro Asn Ile Gln Asp Pro
115 120 125

Ala Gln Ala Glu Ala Tyr Thr Ile Tyr Trp Leu Val Ala Ala Leu Ala
130 135 140

Pro Leu Val Ala Ala Pro Pro Arg Pro Ser Gln Gly Arg Leu Ala Gly
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Met Gln Arg Arg Trp
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gtc ttc gtg ctg ctc gac gtg ctg tgc tta ctg gtc gcc tcc ctg ccc 162
Val Phe Val Leu Leu Asp Val Leu Cys Leu Leu Val Ala Ser Leu Pro
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Phe Ala Ile Leu Thr Leu Val Asn Ala Pro Tyr Lys Arg Gly Phe Tyr
25 30 35

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Cys Gly Asp Asp Ser Ile Arg Tyr Pro Tyr Arg Pro Asp Thr Ile Thr
40 45 50

cac ggg ctc atg gct ggg gtc acc atc acg gcc acc gtc atc ctt gtc 306
His Gly Leu Met Ala Gly Val Thr Ile Thr Ala Thr Val Ile Leu Val
55 60 65

tcg gcc ggg gaa gcc tac ctg gtg tac aca gac cgg ctc tat tct cgc 354
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Ser Asp Phe Asn Asn Tyr Val Ala Ala Val Tyr Lys Val Leu Gly Thr				
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tcc ctg ttt ggg gct gcc gtg agc cag tct ctg aca gac ctg gcc aag				450
Phe Leu Phe Gly Ala Ala Val Ser Gln Ser Leu Thr Asp Leu Ala Lys				
105	110	115		
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Tyr Met Ile Gly Arg Leu Arg Pro Asn Phe Leu Ala Val Cys Asp Pro				
120	125	130		
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Asp Trp Ser Arg Val Asn Cys Ser Val Tyr Val Gln Leu Glu Lys Val				
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Cys Arg Gly Asn Pro Ala Asp Val Thr Glu Ala Arg Leu Ser Phe Tyr				
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Ser Gly His Ser Ser Phe Gly Met Tyr Cys Met Val Phe Leu Ala Leu				
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Tyr Val Gln Ala Arg Leu Cys Trp Lys Trp Ala Arg Leu Leu Arg Pro				
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Thr Val Gln Phe Leu Val Ala Phe Ala Leu Tyr Val Gly Tyr Thr				
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Arg Val Ser Asp Tyr Lys His His Trp Ser Asp Val Leu Val Gly Leu				
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Leu Gln Gly Ala Leu Val Ala Ala Leu Thr Val Cys Tyr Ile Ser Asp				
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Phe Phe Lys Ala Arg Pro Pro Gln His Cys Leu Lys Glu Glu Leu				
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Glu Arg Lys Pro Ser Leu Ser Leu Thr Leu Thr Leu Gly Glu Ala Asp				
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cac aac cac tat gga tac ccg cac tcc tcc tcc tga ggccggaccc				976
His Asn His Tyr Gly Tyr Pro His Ser Ser Ser				
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<400> 71

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Lys Arg Gly Phe Tyr Cys Gly Asp Asp Ser Ile Arg Tyr Pro Tyr Arg
35 40 45

Pro Asp Thr Ile Thr His Gly Leu Met Ala Gly Val Thr Ile Thr Ala
50 55 60

Thr Val Ile Leu Val Ser Ala Gly Glu Ala Tyr Leu Val Tyr Thr Asp
65 70 75 80

Arg Leu Tyr Ser Arg Ser Asp Phe Asn Asn Tyr Val Ala Ala Val Tyr
85 90 95

Lys Val Leu Gly Thr Phe Leu Phe Gly Ala Ala Val Ser Gln Ser Leu
100 105 110

Thr Asp Leu Ala Lys Tyr Met Ile Gly Arg Leu Arg Pro Asn Phe Leu
115 120 125

Ala Val Cys Asp Pro Asp Trp Ser Arg Val Asn Cys Ser Val Tyr Val
130 135 140

Gln Leu Glu Lys Val Cys Arg Gly Asn Pro Ala Asp Val Thr Glu Ala
145 150 155 160

Arg Leu Ser Phe Tyr Ser Gly His Ser Ser Phe Gly Met Tyr Cys Met
165 170 175

Val Phe Leu Ala Leu Tyr Val Gln Ala Arg Leu Cys Trp Lys Trp Ala
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Arg Leu Leu Arg Pro Thr Val Gln Phe Phe Leu Val Ala Phe Ala Leu
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Tyr Val Gly Tyr Thr Arg Val Ser Asp Tyr Lys His His Trp Ser Asp
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Val Leu Val Gly Leu Leu Gln Gly Ala Leu Val Ala Ala Leu Thr Val
225 230 235 240

Cys Tyr Ile Ser Asp Phe Phe Lys Ala Arg Pro Pro Gln His Cys Leu
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Gly Lys Ser Pro Glu Glu Met Tyr Ile Gln Gln Lys Val Arg Val Leu
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Leu Met Leu Arg Lys Met Gly Ser Asn Leu Thr Ala Ser Glu Glu Glu
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Gln Ala Lys Asp Asp Phe Leu Arg His Tyr Thr Val Ser Asp Pro Arg
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Thr His Pro Lys Gly Tyr Thr Glu Tyr Lys Val Thr Ala Gln Phe Ile
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Tyr Ser Asp Phe Arg Lys Leu His Gly Asp Leu Ala Tyr Thr His Arg
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Asn Leu Phe Arg Arg Leu Glu Glu Phe Pro Ala Phe Pro Arg Ala Gln
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Val Phe Gly Arg Phe Glu Ala Ser Val Ile Glu Glu Arg Arg Lys Gly
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gca gag gac ctg ctt cgc ttc act gtg cac ata cct gcg ctc aac aac 933
Ala Glu Asp Leu Leu Arg Phe Thr Val His Ile Pro Ala Leu Asn Asn
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Ser Pro Gln Leu Lys Glu Phe Phe Arg Gly Gly Glu Val Thr Arg Pro
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Leu Glu Val Ser Arg Asp Leu His Ile Leu Pro Pro Pro Leu Ile Pro
135 140 145

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Glu Glu Ala Ser Gly Ser Pro Ala Arg Gly Pro Leu Thr Glu Ala Glu	
200 205 210	
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Leu Ala Leu Phe Asp Pro Phe Ser Lys Gly Asp Pro Leu Pro Ala Arg	
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Gln Glu Gly Val Lys Lys Lys Ala Ala Glu Tyr Leu Lys Arg Ala Glu	
230 235 240	
gag atc ctg cgc ctg cac ctg tct caa ctc cca ccc taa cagggagtgg	1366
Glu Ile Leu Arg Leu His Leu Ser Gln Leu Pro Pro	
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Thr His Arg Asn Leu Phe Arg Arg Leu Glu Glu Phe Pro Ala Phe Pro
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Arg Ala Gln Val Phe Gly Arg Phe Glu Ala Ser Val Ile Glu Glu Arg
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Arg Lys Gly Ala Glu Asp Leu Leu Arg Phe Thr Val His Ile Pro Ala
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Thr Arg Pro Leu Glu Val Ser Arg Asp Leu His Ile Leu Pro Pro Pro
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Pro Ala Glu Arg Arg Gly Leu Glu Glu Leu Glu Val Pro Val Asp Pro
165 170 175

Pro Pro Ser Ser Pro Ala Gln Glu Ala Leu Asp Leu Leu Phe Asn Cys
180 185 190

Glu Ser Thr Glu Glu Ala Ser Gly Ser Pro Ala Arg Gly Pro Leu Thr
195 200 205

Glu Ala Glu Leu Ala Leu Phe Asp Pro Phe Ser Lys Gly Asp Pro Leu
210 215 220

Pro Ala Arg Gln Glu Gly Val Lys Lys Lys Ala Ala Glu Tyr Leu Lys
225 230 235 240

Arg Ala Glu Glu Ile Leu Arg Leu His Leu Ser Gln Leu Pro Pro
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250 255